598

U. S. DEPARTMENT OF AGRICULTURE.

OFFICE OF EXPERIMENT STATIONS—BULLETIN NO. 129.

A. C. TRUE, Director.

DIETARY STUDIES

IN

BOSTON AND SPRINGFIELD, MASS., PHILADELPHIA, PA., AND CHICAGO, ILL.

BY

LYDIA SOUTHARD, ELLEN H. RICHARDS, SUSANNAH USHER, BERTHA M. TERRILL, AND AMELIA SHAPLEIGH.

EDITED BY

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WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1903.

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Office of Experiment Stations,
Washington, D. C., April 28, 1903.

Sir: I have the honor to transmit herewith a report of a number of dietary studies which were offered to this Office for publication. These include investigations at the Boston School of Housekeeping by Miss Lydia Southard; a study at the same institution by Miss Susannah Usher and Miss Bertha M. Terrill; at the Bible Normal College, at that time located at Springfield, Mass., but now at Hartford, Conn., and designated School of Religious Pedagogy, by Miss Bertha M. Terrill; and of families of different nationalities living in the thickly congested districts of Philadelphia and Chicago, by Mrs. Ellen H. Richards and Miss Amelia Shapleigh. Much credit is due Miss Henrietta I. Goodrich, director of the Boston School of Housekeeping, for planning the series of studies carried on in that institution in 1901-2, and to Miss Annette Philbrick, fellow at the Boston School of Housekeeping, 1901-2, who rendered valuable assistance in carrying out the details of these studies. The preparation and editing of the material has been very largely the work of Mr. R. D. Milner, of the Office of Experiment Stations.

The studies at the Boston School of Housekeeping and the Bible Normal College are of special importance, since in all but one the cost of the food was decided upon beforehand, and an attempt was made to supply with the sum allowed a satisfactory and nutritious diet corresponding to the commonly accepted dietary standards. The studies, which were in the main successful as regards the object sought, are interesting and valuable attempts to apply in a practical way the accumulated results of nutrition investigations. All the data included are of value in themselves and useful for purposes of comparison and in other ways.

The report is submitted with the recommendation that it be published as Bulletin No. 129 of this Office.

Respectfully,

A. C. True,
Director.

Hon. James Wilson,
Secretary of Agriculture.

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DIETARY STUDIES IN AMERICAN CITIES.

DIETARY STUDIES AT THE BOSTON SCHOOL OF HOUSE-KEEPING, 1901–2.

By Lydia Southard, B. A.

INTRODUCTION.

The demand for accurate information upon the subject of nutrition has been partly met in the past by making dietary studies in widely separated places, and with persons in widely different circumstances. There is so much difficulty, however, in comparing dietaries observed under such varying conditions as those due to the personality of both the individuals in charge and those fed, their previous food habits, their local market limitations, etc., that the drawing of valuable conclusions is often prevented. It was therefore deemed worth while at the Boston School of Housekeeping, which is now incorporated with Simmons College, to make some comparisons of the effects of different dietaries upon the same family. The details and results of four studies in which the group of persons remained the same, but the cost of the diet was varied, and the quantity and quality of food materials varied accordingly, are here reported. The work was planned by the director of the school, Miss Henrietta I. Goodrich, in such a way that the diet could be modified in kind and cost. The usual methods were followed in this investigation and many of the details were attended to by Miss Annette Philbrick, fellow of the School of Housekeeping 1901–2.

Of the four dietary studies reported the first was made under the usual living conditions to find out the cost of the regular diet, and to learn how nearly it conformed to the commonly accepted dietary standard. In the second study it was designed to have the diet medium in cost—that is, between 20 and 30 cents per person per day, the diet finally selected costing on an average 25 cents. In the third study the attempt was made to furnish a reasonably attractive diet at a low cost, namely, less than 20 cents per person per day. The diet decided upon actually cost 17 cents. In the fourth study it was proposed to supply a diet of high cost, namely, one ranging from 50 to 60 cents per person per day. The diet actually supplied cost on an average 53 cents.

In all cases these values represent only the actual cost of the food, no account being taken of the cost of preparation and service.

The observations were confined to the teachers and pupils in residence at the School of Housekeeping, comprising fifteen women. The employees (house workers) in the school had a separate table, and for that reason were not included in these experiments. One of the difficulties experienced was the impossibility of conducting the work without the knowledge of those upon whom the experiments were made. At least two other conditions were unfavorable to the best results, namely, the shortness of time during which it was possible to continue each experiment, and the indifference of some of the family as to the success or failure of the undertaking. Those eating at the school table were of two distinct classes as regards their mental attitude toward the investigation: the teachers and professional students were thoroughly interested in the scientific side of the dietary work, but the remaining and larger portion of the group felt only the interest of average boarders. On the other hand, the facilities for gaining exact information were unusually good; and it is thought that a comparison and discussion of the varying results obtained in the same household may add something of value to what has already been done in the study of nutrition.

EQUIPMENT AND METHOD.

The primary necessity in the way of equipment for dietary studies is scales which are accurate, those employed in these studies being platform scales, with a weighing capacity of from one-quarter of an ounce to 300 pounds. For convenience in carrying out the details of the studies several utensils of various sizes were used for holding the supplies of different food materials that were to be used during the experiments, so that they could be easily weighed and kept separate from the general supplies for the rest of the household. Wooden buckets, with handles and close-fitting covers, were obtained at a kitchen-furnishing establishment. Not more than ten of these were required. They varied in capacity from 25 to 50 pounds, and in cost from 25 to 50 cents each. The buckets were used for sugar, flour, etc. Baskets and boxes given away by grocers in delivering their goods were collected for holding such commodities as fresh fruit, vegetables, and eggs. Glass and porcelain jars, with covers, were set aside for condiments, starches, and the like. Not more than five of each were usually needed in the same experiment. The glass jars held 1 quart each, and were of the sort ordinarily used for preserving fruit. The porcelain jars were smaller, and were of the sort in which marmalades and certain cheeses are sold. Standard tin measuring cups, holding exactly one-fourth of a liquid quart, were obtained for 10 cents each. Not more

than six were really needed, two for the experimenters and four for use in the cooking. One wooden half-peck measure, costing 25 cents, was purchased at an agricultural-supply store. Three tin funnels of different sizes, and a number of plain and durable plates and bowls, all of which might be found in the average kitchen, completed the more substantial part of the outfit.

Prepared labels of two contrasting colors were found to be most useful as a means of distinguishing between receptacles for carefully weighed materials to be consumed in the experiments, and those containing unweighed articles to be used at other times. Firmly bound note books, for the preservation of all data, were also a great convenience.

Before the special dietary studies were undertaken a regular study was carried on with the family in their ordinary school life during two consecutive weeks taken at random. The menus followed in this study were those planned by the head of the house. Although the selection of food materials had been made according to a general knowledge of their nutritive values, no attempt was made in this case to regulate the cost nor to provide a diet that would furnish definite quantities of nutrients and energy.

Save for the fact that in the regular dietary study the cost and nutritive value of the diet were not predetermined, and that no attention was paid to table and kitchen wastes, the methods of procedure were the same as were followed in the special studies. The making of this study therefore served a double purpose; it gave practice, and afforded information which assisted greatly in deciding how to meet the requirements of the special studies that were to follow.

In making the studies in which the cost and nutritive value were regulated, it was necessary to select a favorable time, to study the markets in advance, and to pay attention to other points, as explained in the following paragraphs:

Date.—The first thing to be determined in each case was the most favorable time for beginning the study and the length of time it was to continue. Obviously, in a locality where the cost of eggs, fresh fruit, etc., changes so often, it is necessary, if the expenditure is limited, to consider the seasons carefully before making out in advance a menu for a diet of definite cost.

Price lists of local food supply.—The dates having been fixed, those in charge of the work consulted their dealers, to learn in advance as nearly as possible the cost of foods at the times decided upon. The result of these inquiries was a full price list upon which the bill of fare could safely be based.

Planning the menu.—The planning of the menu was the next step. Guided by the cost of food as already ascertained, the workers arranged a programme for meals which conformed as well as possible,

under the circumstances, to the following requirements: (1) proper proportions of nutrients and energy; (2) adequate quantities of food materials; (3) wholesome combinations; (4) acceptable dishes; and (5) economy. That is, the persons in charge endeavored not only to approach the scientific standard of a properly balanced dietary, but also to recognize all normal healthy tastes of the school family, so far as possible, while at the same time keeping within the financial bounds of the experiment.

With the proposed menu as a foundation, the cook and the cook books were consulted to learn what amounts of the different raw materials would be required. This done, a set of tables was made out, giving the cost and nutritive value of such a bill of fare. These tables, together with the menus for the experiment, were called, for convenience, the "tentative dietary." The reason for working out this "tentative" statement in such detail was to discover, before it was too late, whether or not the menu decided upon could be given to the family at the price allowed for the experiment; and whether, if the estimated quantities were fully or nearly consumed, the person eating the food would receive an adequate and properly balanced diet. The "tentative dietary" was criticised and altered before each experiment, as the financial or nutritive needs of the case demanded. The revised and improved "tentative" was then called the "estimated dietary." Care was always taken to have the latter furnish approximately 90 grams of protein and 2,450 calories of energy per woman per day in accordance with the commonly accepted American dietary standard for a woman at light muscular work.

Marketing.—Data for the marketing lists were then gathered from the column of "amounts" in the "estimated" tables, and the marketing for the experiment was done. In most cases, those having charge of the dietaries confined themselves to shops regularly patronized by the school. In the experiment with the 17-cent diet, however, some shops carrying cheaper goods were visited in order to secure the needed foods at lower prices.

Weighing.—It was found desirable in weighing uncooked food to learn the weight of each receptacle when empty and to label it accordingly. Those having covers were always weighed without them to avoid inaccuracies in case the covers should ever be exchanged.

The day before beginning the experiment it was the custom to weigh all the staples on hand which were required for the entire period. The more perishable food stuffs, which were obtained only as needed, were weighed from day to day as soon as they were received from the shops.

Account of these weights was kept in a notebook prepared beforehand, which contained a classified list of edibles to be used in the work. Sufficient space was left under each heading for the entries in all experiments.

After each meal the "left overs" of any sort were weighed and the weights recorded. The quantities were usually too small to appear again upon the school family table. When this was the case the food was later used by the employees. This made for the experimenters a complication peculiar to establishments where two distinct tables are supplied. It was necessary to calculate from the recipes of all "made dishes" the exact amount of each ingredient in the material not consumed, and deduct it from the quantities originally set aside for the dietary.

Waste.—During some of the experiments, the amount of waste and refuse was weighed and recorded. In these cases the amounts of kitchen waste, consisting of such articles as potato parings, coffee grounds and the like, were recorded after each meal. At the same time account was kept of the kinds and amounts of uneaten fragments left upon the plates at table.

When the study was over an inventory was taken of raw materials which had not been used. The amounts on hand, like the ingredients of the "left overs," were deducted from the weights recorded at the beginning or purchased during the study. From this result the amount of waste might be subtracted, in which case the figures obtained would represent food actually eaten.

Computation of results.—On the basis of the real, as distinguished from the "estimated" weights, new tables were made out, showing the cost and nutritive value of what had been consumed. These tables constitute what we called the "actual" or "final" dietary, and in a condensed form they are given beyond.

None of the food materials from these studies was analyzed. The composition of all materials used was assumed to be the same as that of the average values for similar materials recorded in a previous publication of the Office of Experiment Stations,[a] except in a few cases in which analyses were taken from an unpublished compilation. The values used in computing the results of the studies are given in Table 29 of the Appendix. The reference numbers in the first column of this table correspond with those in parentheses following the weight and cost of the food materials in the table for each study, and thus indicate the composition assumed for each material. The fuel value of the materials was computed by use of the following factors: For protein and carbohydrates 4 calories per gram, and for fat 8.9 calories.

DIETARY UNDER USUAL CONDITIONS (No. 1a).

The study began November 7, 1901, and lasted fourteen days. The members of the family who were eating the regular food, and could therefore be considered in all experiments, were three teachers and

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[a] U. S. Dept. Agr., Office of Experiment Stations Bul. 28, revised.

twelve students, a group of fifteen women. All of these were in good health. The average weight of these persons was approximately 125 pounds each. There were a few absences during the period of two weeks, and an occasional guest came to the table; but an accurate account was kept of the whole number of meals served, which was 632, equivalent to 1 woman for 211 days.

The bill of fare for the fourteen days follows:

Daily menu.

THURSDAY, NOVEMBER 7.

Breakfast.—Fresh fruit, wheat breakfast food,[a] bacon, creamed potatoes, morningside rolls.

Luncheon.—Baked beans and tomato soup, creamed dried beef, rice croquettes, dates and peanuts.

Dinner.—Rump steak, spaghetti and cheese, escalloped tomato, lettuce and radish salad, cheese wafers, Rebecca pudding with boiled custard.

FRIDAY, NOVEMBER 8.

Breakfast.—Fresh fruit, wheat breakfast food, creamed eggs, fried potatoes, graham muffins.

Luncheon.—Escalloped oysters, cabbage salad, samp, baked apples, cookies, Russian tea.

Dinner.—Clear beef-stock soup, baked halibut with tomato sauce, mashed potatoes, baked Hubbard squash, chocolate ice cream.

SATURDAY, NOVEMBER 9.

Breakfast.—Fresh fruit, wheat breakfast food, codfish hash, wheat rolls.

Luncheon.—Meat pie (rump), spaghetti with cheese, lettuce salad, gingerbread, cream cheese, Russian tea.

Dinner.—Clear stock soup, braised beef, mashed potatoes, fried parsnips, cranberry jelly, Norwegian prune pudding, cream sauce.

SUNDAY, NOVEMBER 10.

Breakfast.—Fresh fruit, shredded-wheat biscuit, Boston brown bread, baked beans.

Dinner.—Braised fowl, sweet potatoes, turnips, cranberry jelly, lettuce and radish salad, cheese wafers, brown bread, ice cream.

Supper.—Vegetable salad, bread and butter, cocoa, preserved peaches, Newport cakes.

MONDAY, NOVEMBER 11.

Breakfast.—Fresh fruit, wheat breakfast food, corn bread, corned-beef hash.

Luncheon.—Clear chicken soup, beef stew, baked potatoes, celery, rice pudding with cream.

Dinner.—Boiled leg of mutton with egg sauce, mashed potatoes, beans, lettuce salad, cheese wafers, hickory nuts, raisins, coffee.

TUESDAY, NOVEMBER 12.

Breakfast.—Fresh fruit, rolled-oat breakfast food, dropped eggs on toast, graham muffins.

Luncheon.—Cold roast beef, crab-apple jelly, samp, lettuce salad, baked indian pudding with cream, Russian tea.

Dinner.—Clear stock soup, baked ham, mashed potatoes, spinach, lemon sherbet.

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[a] Different kinds were used during the study to give variety.

WEDNESDAY, NOVEMBER 13.

Breakfast.—Fresh fruit, wheat breakfast food, bacon, baked potatoes, hot rolls.

Luncheon.—Escalloped mutton, Saratoga potatoes, celery, chocolate, bread pudding with hard sauce.

Dinner.—Roast rump, browned potatoes, succotash, grape jelly, lettuce salad, cheese wafers, coffee jelly with cream, sugar cookies.

THURSDAY, NOVEMBER 14.

Breakfast.—Fresh fruit, shredded-wheat biscuit, sausage, brewis, graham rolls.

Luncheon.—Baked beans and tomato soup, cold sliced ham, Spanish pickle, spaghetti with cheese, baked apples, Russian tea.

Dinner.—Cream of Lima bean soup, toasted Boston crackers, rump steak, mashed potatoes, peas, barberry jelly, tapioca cream.

FRIDAY, NOVEMBER 15.

Breakfast.—Fresh fruit, wheat breakfast food, codfish balls, hot rolls.

Luncheon.—Finnan haddie, baked potatoes, celery, apple pie, cheese, Russian tea.

Dinner.—Cream of clam chowder, escalloped fish, baked sweet potatoes, parsnip cakes, celery, steamed apple pudding with foam sauce.

SATURDAY, NOVEMBER 16.

Breakfast.—Fresh fruit, wheat breakfast food, creamed dried beef, fried potatoes, corn bread.

Luncheon.—Cold sliced rump beef, samp, lettuce salad, hot ginge read, cream cheese, Russian tea.

Dinner.—Clear stock soup, corned beef, boiled potatoes, boiled cabbage, creamed carrots, lemon jelly.

SUNDAY, NOVEMBER 17.

Breakfast.—Shredded-wheat biscuit, Boston baked beans, brown bread, doughnuts.

Dinner.—Split-pea soup, braised fowl, mashed potatoes, baked squash, cranberry jelly, frozen fig pudding, coffee.

Supper.—Creamed oysters, bread and butter, cocoa, Newport cakes.

MONDAY, NOVEMBER 18.

Breakfast.—Fresh fruit, wheat breakfast food, corned-beef hash, popovers.

Luncheon.—Escalloped fowl, Saratoga potatoes, cabbage and celery salad, cup cakes, Russian tea.

Dinner.—Braised beef, browned potatoes, salsify, Spanish pickle, vegetable salad, cheese wafers, Irish moss blanc mange with cream, orange marmalade.

TUESDAY, NOVEMBER 19.

Breakfast.—Fresh fruit, wheat breakfast food, scrambled eggs with chopped ham, Boston brown bread.

Luncheon.—Meat pie (rump beef), samp, pickled beets, junket pudding, sugar cookies, Russian tea.

Dinner.—Clear stock soup, boiled leg of mutton with caper sauce, escalloped onions, browned sweet potatoes, tapioca pudding with cream.

WEDNESDAY, NOVEMBER 20.

Breakfast.—Fresh fruit, rolled-oat breakfast food, bacon, baked potatoes, wheat muffins.

Luncheon.—Casseroles of mutton and rice, tomato sauce, Saratoga potatoes, celery, pumpkin pie, cheese.

Dinner.—Rump steak with horseradish sauce, mashed potatoes, escalloped tomatoes, watercress salad, cheese wafers, coffee jelly with whipped cream.

The choice of coffee, cocoa, or milk was given each morning at breakfast. Heavy cream was always furnished with coffee in the morning, and thin cream was supplied for the cereal. When not otherwise specified in the menus, thin cream was served with dessert. French dressing was served in all cases with the salads mentioned above. The fresh fruit served at breakfast was always either apples, pears, grapes, or bananas. Cold bread, either wheat or graham, while not mentioned in the menus, was furnished three times a day to those who desired it. Butter was served at breakfast and luncheon, but not at dinner.

According to the usual custom of the house, an 11 o'clock luncheon of crackers and milk was offered 5 days in the week. These luncheons do not appear in the menu, but the amounts of food eaten have been taken account of in the tables with the other materials.

The cost of the diet in this study was based upon wholesale rates, at which most of the food stuffs used at the school were bought. In addition to the food materials purchased, the beverages and condiments, as coffee, pepper, salt, etc., used during the whole study cost $3.55, or 1.7 cents per woman per day.

The details of the study follow.

TABLE 1.—*Weights and cost of food and nutrients in dietary study No. 1a.*

Food consumed during the entire study (14 days).		Cost, nutrients, and fuel value of food per woman per day.				
Kinds and amounts.	*Cost.*	*Cost.*	*Protein.*	*Fat.*	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Rump roast, 33.53 pounds, $4.52 (13); shin, 7.75 pounds, 39 cents (18); steak, rump, 14.09 pounds, $1.90 (31); corned beef, 6.88 pounds, 83 cents (2); dried beef, 3.92 pounds, 90 cents (4); soup stock, 2.08 pounds (22); suet, 0.38 pound, 2 cents (35). Mutton, leg, 1.72 pounds, 23 cents (48)	8.79	4.2	21	27	....	324
Pork: Fresh, 2.17 pounds, 28 cents (59); salt pork, 2.46 pounds, 15 cents (64); bacon, 0.97 pound, 14 cents (56); ham, 9.33 pounds, $1.21 (60); sausage, 3.15 pounds, 38 cents (66); lard, 0.18 pound, 2 cents (62)	2.18	1.0	5	17	....	179
Poultry, fowl, 22.34 pounds, $3.13 (75)	3.13	1.5	7	6	....	81
Fish: Cod, salt, 1.88 pounds, 24 cents (80); haddock, 2.25 pounds, 14 cents (84); halibut, 1.67 pounds, 36 cents (85); clams, 3.73 pounds, 36 cents (78); oysters, 8.38 pounds, $1.42 (93); Finnan haddie, 5.56 pounds, 45 cents (83)	2.97	1.4	6	1	1	37
Eggs, 16.47 pounds, $1.54 (105)	1.54	.7	5	3	....	47
Cream: Thin, 13.46 pounds, $1.56 (113); heavy, 9.59 pounds, $2.76 (113)	4.32	2.0	1	9	2	92
Milk, 221.63 pounds, $5.99 (114)	5.99	2.8	16	19	24	32[illegible]
Butter, 31.72 pounds, $8.24 (106)	8.24	3.9	1	58	....	52[illegible]
Cheese: Pale, 1.56 pounds, 23 cents (108); full cream, 0.79 pound, 46 cents (111)	.69	.3	1	2	....	2[illegible]
Total animal food	37.85	17.8	63	142	27	1,62[illegible]

TABLE 1.—*Weights and cost of food and nutrients in dietary study No. 1a*—Continued.

Food consumed during the entire study (14 days). Kinds and amounts.	Cost.	Cost, nutrients, and fuel value of food per woman per day. Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Corn meal, yellow, 2.97 pounds, 8 cents (119); oat breakfast food, 1.52 pounds, 9 cents (129); samp, 1.84 pounds, 6 cents (134); wheat breakfast food, 3.65 pounds, 29 cents (137); shredded wheat, 0.45 pound, 5 cents (143); wheat breakfast food, 0.97 pound, 5 cents (136); wheat breakfast food, 0.60 pound, 7 cents (142); flour, bread, 45.41 pounds, $1 (122); flour, pastry, 2.66 pounds, 7 cents (125); flour, entire wheat, 3.39 pounds, 14 cents (123); bread, graham, 0.91 pound, 3 cents (145); bread, wheat, 8.55 pounds, 25 cents (147); bread, Boston brown, 0.72 pound, 1 cent (144); rolls, 0.28 pound, 1 cent (160); crackers, Boston, 2.70 pounds, 22 cents (154); wafers, salted, 2.48 pounds, 53 cents (161); cookies, sugar, 0.31 pound, 3 cents (152); spaghetti, 1.34 pounds, 13 cents (135)	3.11	1.5	19	3	128	615
Sugars, starches, and oils: Sugar, brown, 0.20 pound, 1 cent (162); sugar, cut loaf, 9.36 pounds, 62 cents (163); sugar, granulated, 24.86 pounds, $1.36 (163); sugar, powdered, 1.02 pounds, 6 cents (163); molasses, dark, 9.73 pounds, 20 cents (165); oil, cotton-seed, 0.50 pound, 5 cents (170); oil, olive, 1.73 pounds, 36 cents (171); cornstarch, 0.86 pound, 7 cents (172); tapioca, 0.54 pound, 2 cents (173); Irish moss, 0.31 pound (169); chocolate, 0.67 pound 19 cents (167); cocoa, 0.73 pound, 33 cents (168)	3.27	1.5	1	6	95	437
Vegetables: Beans, Lima, 0.22 pound, 2 cents (176); beans, pea, 1.65 pounds, 16 cents (177); beans, string (canned), 4.83 pounds, 77 cents (179); cabbage, 3.08 pounds, 10 cents (181); carrots, 3.81 pounds, 16 cents (182); celery, 17.66 pounds, $1.13 (183); lettuce, 6.88 pounds, 70 cents (187); onions, 2.59 pounds, 9 cents (189); oyster plant, 2.31 pounds, 20 cents (191); parsnips, 4.59 pounds, 22 cents (191); peas, canned, 6.54 pounds, 63 cents (192); peas, split, 1.09 pounds, 6 cents (195); potatoes, 83.34 pounds, $1.21 (196); potato chips, 1.31 pounds, 38 cents (197); pumpkins, 8 pounds, 20 cents (199); radishes, 1.54 pounds, 20 cents (200); spinach, 1.25 pounds, 15 cents (206); succotash, canned, 2.28 pounds, 18 cents (208); squash, 9.50 pounds, 27 cents (207); potatoes, sweet, 17.48 pounds, 28 cents (198); tomatoes, canned, 10.72 pounds, $1.33 (209); watercress, 0.73 pound, 10 cents (213)	8.54	4.0	8	2	49	246
Fruits, etc.: Apples, 23.25 pounds, 81 cents (214); apricots, dried, 1.69 pounds, 32 cents (217); bananas, 11.83 pounds, 75 cents (218); dates, 3.04 pounds, 20 cents (230); figs, 0.85 pound, 11 cents (231); grapes, Catawba, 13.27 pounds, $1.46 (232); lemons, 6.38 pounds, 40 cents (236); peaches, canned, 2.41 pounds, 19 cents (239); pears, 3.33 pounds, 27 cents (241); prunes, 5.17 pounds, 47 cents (247); raisins, for cooking, 0.35 pound, 3 cents (248); raisins, for table, 0.89 pound, 30 cents (248); jelly, barberry, 1.14 pounds, 9 cents (219); jelly, crabapple, 1.14 pounds, 9 cents (226); jelly, cranberry, 7.33 pounds, 47 cents (228); jelly, grape, 1.48 pounds, 12 cents (233); marmalade, orange, 0.91 pound, 12 cents (237); nuts, hickory, 2.38 pounds, 24 cents (253); English walnuts, 0.44 pound, 18 cents (256); peanuts, 0.97 pound, 6 cents (254)	6.65	3.3	2	3	50	235
Total vegetable food	21.57	10.3	30	14	322	1,533
Total food	59.42	28.1	93	156	349	3,156
Beverages, condiments, etc	3.55	1.7				

The kitchen and table waste were not weighed during the period of this study, but the nutritive values of the foods were calculated from the average composition of the foods as purchased, which makes allowance for portions which are really not edible. Presumably, then, the figures given above stand for material which might have been consumed entirely if the family had so desired.

It will be noticed that both loaves of bread and bread flour are mentioned. The bread was almost entirely homemade and was on hand ready for use before the observations began. Therefore the bread is estimated as such, rather than reduced to terms of raw materials. As the loaves were not sufficient in number to last through the whole period, flour and other ingredients were weighed in bulk for the remainder of the time and were taken account of accordingly.

DIETARY OF MEDIUM COST (No. 2a).

The experiment with a diet of medium cost, namely, about 25 cents, covered one week only, lasting from January 9 to 15, inclusive. The circumstances were the same as in the preceding case, save that the family numbered only 14 women. The total number of meals eaten was 298, equivalent to 1 woman for 99 days.

The menus for the entire study follow:

Daily menu.

THURSDAY, JANUARY 9.

Breakfast.—Wheat breakfast food,[a] bacon, creamed potatoes, wheat bread.

Luncheon.—Finnan haddie, boiled samp, lettuce salad, gingerbread, full-cream cheese, Russian tea.

Dinner.—Clear turkey-stock soup, roast mutton, escalloped onions, roasted potatoes, apricot ice.

FRIDAY, JANUARY 10.

Breakfast.—Oranges, shredded-wheat biscuit, creamed codfish, baked potatoes, entire-wheat muffins.

Luncheon.—Beef loaf, creamed spaghetti, stewed prunes, toasted Boston crackers, Russian tea.

Dinner.—Baked haddock, egg sauce, mashed potatoes, creamed carrots and canned peas, lettuce salad, salted wafers, apple pie, pale American cheese.

SATURDAY, JANUARY 11.

Breakfast.—Oranges, rolled-oat breakfast food, Finland bloaters, creamed toast, graham muffins.

Luncheon.—Rice and mutton croquettes, escalloped macaroni and tomato, pop-corn brittle, Russian tea.

Dinner.—Split-pea soup, roast veal, Saratoga potatoes, creamed salsify, farina pudding with thin cream.

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[a] Different kinds were used during the study to give variety.

SUNDAY, JANUARY 12.

Breakfast.—Oranges, wheat breakfast food, Boston baked beans, Boston brown bread.

Dinner.—Clear beef-stock soup, roast fowl, dressing, gravy, boiled rice, lettuce salad, frozen-fig pudding, coffee.

Supper.—Creamed veal on toast, bread and butter sandwiches, Norwegian apple pudding with thin cream, cocoa.

MONDAY, JANUARY 13.

Breakfast.—Oranges, wheat breakfast food, codfish balls, corn bread.

Luncheon.—Clam chowder, baked beans and lettuce salad, hot wheat rolls, coffee jelly with thin cream, Russian tea.

Dinner.—Clear chicken soup, roast beef rump, creamed lima beans, roasted potatoes, sliced oranges and bananas, sugar cookies.

TUESDAY, JANUARY 14.

Breakfast.—Bananas, corn-meal mush, creamed dried beef, wheat muffins.

Luncheon.—Escalloped fowl and spaghetti, baked mashed potatoes, hot wheat rolls, German fried toast with foam sauce.

Dinner.—Baked beans and tomato soup, meat pie (made from rump roast), roasted sweet potatoes, lemon sherbet, sugar cookies.

WEDNESDAY, JANUARY 15.

Breakfast.—Oranges, rolled-oat breakfast food, creamed hard-boiled eggs on toast, entire-wheat raised biscuit.

Luncheon.—Cream of lima-bean soup, pork sausages, steamed brown bread, dates and peanuts.

Dinner.—Clear beef-stock soup, beefsteak (rump), boiled samp, escalloped tomato, Spanish pickle, lettuce salad, tapioca cream.

The 11 o'clock luncheon of crackers and milk, served to any who desired it, has been included in the estimate of cost and food values given beyond, though not mentioned in the menu. At breakfast milk, cocoa, and coffee were served, and one of the three was taken by each member of the family. Heavy cream was used with coffee every morning, but at Sunday dinner sugar only was furnished and the coffee was served in small cups. Thin cream was always supplied with the breakfast cereal. When no substitute is mentioned it is understood that cold graham or wheat bread was served at each meal. At breakfast and luncheon butter was served with the bread, but never at dinner. When oranges were served at breakfast, half an orange was given to each person. When bananas were on the morning bill of fare, one was served each member of the family. French dressing always accompanied lettuce.

It was estimated that the diet provided according to the above menus would furnish on an average per woman per day 98 grams of protein, 123 grams of fat, and 348 grams of carbohydrates, and would have a fuel value of 2,878 calories. The estimated cost of the diet (including food accessories), based upon wholesale prices, was 24.8 cents per woman per day.

The details of the study follow.

TABLE 2.—*Weights and cost of food and nutrients in dietary study No. 2a.*

Food consumed during the entire study (7 days).		Cost, nutrients, and fuel value of food per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Rump roast, 7.38 pounds, 99 cents (15); rump steak, 3.78 pounds, 51 cents (30); soup bones, 12.04 pounds (21); soup stock, 5.81 pounds (22), hamburg steak, 3.96 pounds, 30 cents (25); dried beef, 0.72 pound, 20 cents (4); gelatin, 0.13 pound, 19 cents (6). Veal, loin, 12.76 pounds, $1.66 (41). Mutton, leg, 9.57 pounds, $1.29 (48)	5.14	5.2	36	25	....	367
Pork: Bacon, 0.87 pound, 12 cents (55); salt pork, 0.25 pound (65); sausage, 2.66 pounds, 32 cents, (66); lard, 1.33 pounds, 15 cents (62)	.61	.6	2	15	....	142
Poultry: Fowl, 9.69 pounds, $1.45 (75)	1.45	1.5	6	6	....	77
Fish: Finland bloaters, 4.76 pounds, 15 cents (82); haddock, 4.13 pounds, 33 cents (84); salt cod, 1.12 pounds, 15 cents (80); clams (edible portion), 2 pounds, 40 cents (78)	1.03	1.0	8	2	....	50
Eggs, 5.95 pounds, $1.28 (105)	1.28	1.3	3	3	....	39
Butter, 10.31 pounds, $2.61 (106)	2.61	2.7	0.5	41	....	367
Milk, 65.53 pounds, $1.78 (114)	1.78	1.8	10	13	15	216
Cream: Thin, 11 pounds, 88 cents (113); heavy, 3.56 pounds, $1.05 (113)	1.93	1.9	1	12	3	123
Cheese: Full cream, 0.26 pound, 19 cents (111); pale American, 0.25 pound, 4 cents (108)	.23	.2	0.5	1	....	11
Total animal food	16.06	16.2	67	118	18	1,392
VEGETABLE FOOD.						
Cereals: Shredded wheat, 0.60 pound, 8 cents (143); rolled oats, 0.63 pound, 4 cents (131); wheat breakfast food, 0.39 pound, 2 cents (136); wheat breakfast food, 0.43 pound, 4 cents (137); wheat breakfast food, 0.35 pound, 2 cents (138); rice, 0.97 pound, 2 cents (133); flour, bread, 19.39 pounds, 42 cents (122); flour, pastry, 1.63 pounds, 5 cents (125); flour, graham, 0.85 pound, 2 cents (124); flour, entire wheat, 0.50 pound, 2 cents (123); bread, 5.33 pounds, 21 cents (147); rolls, 0.28 pound, 1 cent (159); cookies, sugar, 0.26 pound, 2 cents (152); crackers, Boston, 1.14 pounds, 9 cents (154); wafers, salted, 0.26 pound, 6 cents (161); macaroni, 0.16 pound, 2 cents (127); samp, 0.76 pound, 2 cents (134); spaghetti, 1.10 pounds, 11 cents (135); pop corn, 0.99 pound, 20 cents (132)	1.47	1.5	18	3	119	575
Sugars, starches, and oils: Sugar, cut loaf, 4.57 pounds, 30 cents (163); sugar, granulated, 13.37 pounds, 73 cents (163); sugar, powdered, 0.33 pound, 2 cents (163); molasses, dark, 2.31 pounds, 4 cents (165); cocoa, 0.24 pound, 9 cents (168); oil, cotton-seed, 0.11 pound, 1 cent (170); oil, olive, 1.16 pounds, 30 cents (170); tapioca, 0.24 pound, 1 cent (173)	1.50	1.5	1	6	93	429
Vegetables: Beans, pea, 0.61 pound, 6 cents (177); beans, lima, 1.24 pounds, 10 cents (176); carrots, 1.98 pounds, 4 cents (182); lettuce, 2.08 pounds, 30 cents (187); onions, 1.44 pounds, 5 cents (189); peas, canned, 1.10 pounds, 11 cents (192); Saratoga potatoes, 0.49 pound, 14 cents (197); potatoes, sweet, 4.55 pounds, 22 cents (198); potatoes, 33.81 pounds, 54 cents (196); salsify, 2.08 pounds, 20 cents (203); tomatoes, 6.31 pounds, 39 cents (211)	2.15	2.2	6	2	38	194
Fruits, nuts, etc.: Apples, 9.49 pounds, 27 cents (214); apricots, 0.72 pound, 14 cents, (216); bananas, 3.75 pounds, 20 cents (218); dates, 1.68 pounds, 11 cents, (230); figs, 0.25 pound, 4 cents (231); lemons, 2.25 pounds, 22 cents (236); oranges, 11.70 pounds, 43 cents (238); prunes, 1.24 pounds, 11 cents (247); peanuts, 0.78 pound, 5 cents (254); English walnuts, 0.25 pound, 10 cents (256)	1.67	1.7	2	2	21	110
Total vegetable food	6.79	6.9	27	13	271	1,308
Total food	22.85	23.1	94	131	289	2,700
Beverages, condiments, etc	0.44	0.4	....	....	....	....

In this study the amount of material rejected in the kitchen and at the table was determined and found to be 15 per cent of the total food purchased. But inasmuch as no distinction was made between refuse, that is, inedible material, and waste, that is, material that could have been eaten but was rejected, no correction for this material has been made in the figures as given in the tables.

According to the final results in the table above, the foods used contained 4 grams less protein, 8 grams more fat, and 59 grams less carbohydrates, and furnished 179 calories less per woman per day than was estimated before the experiment began.

DIETARY OF LOW COST (No. 3a).

The low-cost diet, which was estimated to furnish food at about 17 cents per woman per day, covered only three days, namely, March 12 to 14, inclusive. The average number of persons at the table was 15, and the total number of meals served 137, equivalent to 1 woman for 46 days.

The menus for the three days were as follows:

Daily menu.

WEDNESDAY, MARCH 12.

Breakfast.—Shredded-wheat biscuit, sausages, hominy cakes with lemon sirup, corn bread.

Luncheon.—Codfish loaf with parsley sauce, baked potatoes, stewed prunes, graham rolls.

Dinner.—Split-pea soup, shoulder of mutton (roasted and stuffed), gravy, boiled samp, escalloped tomatoes, graham bread, lemon sherbet.

THURSDAY, MARCH 13.

Breakfast.—Wheat breakfast food, smelts, creamed toast, graham muffins.

Luncheon.—Clear mutton stock soup, beef loaf with brown sauce, steamed brown bread, dates and peanuts.

Dinner.—Beef stew and dumplings, creamed lima beans, boiled rice, sliced bananas dressed with lemon juice and powdered sugar.

FRIDAY, MARCH 14.

Breakfast.—Rolled-oat breakfast food, creamed codfish, fried cornmeal mush, buttered toast.

Luncheon.—Baked beans and tomato soup, macaroni with cheese, German potato salad, wheat rolls, hot gingerbread, Russian tea.

Dinner.—Clear beef stock soup, escalloped haddock, lettuce salad, sweet potato browned in sugar sirup, steamed suet pudding (with dates) and lemon sauce.

The 11 o'clock luncheon of crackers and milk was offered, as usual, to those who cared to take it, and forms part of the amounts that are included in the tables.

The choice of cocoa, coffee, or milk was given each morning at breakfast. The cocoa was made with whole milk, and thin rather

than heavy cream was furnished with the coffee, the top of the milk being frequently used, as milk was bought in large quantities. This accounts for the small amount of thin cream recorded in the tables. Whole milk instead of cream was used with the cereals at breakfast, and sugar was always supplied with cereals and hot beverages. When no substitute is mentioned cold wheat or graham bread was served at each meal as usual. Butter was always served at breakfast and luncheon, but not at dinner. Chicken fat was sometimes used instead of butter in cooking. Lettuce was dressed, as usual, with seasoned olive oil and vinegar.

It was estimated that the diet according to the menus proposed would furnish 80 grams of protein, 126 grams of fat, and 348 grams of carbohydrates per woman per day, and have a fuel value of 2,833 calories of energy.

The details of the study are given below.

TABLE 3.—*Weights and cost of food and nutrients in dietary study No. 3a.*

Food consumed during the entire study (3 days).	Cost, nutrients, and fuel value of food per woman per day.					
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Round, lower, 3.25 pounds, 33 cents (29); hamburg steak, 3 pounds, 33 cents (25); soup stock, 16 pounds (22); suet, 0.22 pound, 1 cent (35). Mutton, shoulder, 8.75 pounds, 70 cents (52)	1.34	3.0	35	24	....	354
Pork: Sausage, 1.25 pounds, 18 cents (56); lard, 0.18 pound, 1 cent (62)	.19	.4	2	7	....	70
Poultry: Chicken fat, 0.44 pound (73)	....	....	....	4	....	36
Fish: Cod, salt, 1.84 pounds, 24 cents (80); haddock, 3.06 pounds, 27 cents (84); smelts, 2 pounds, 44 cents (101)	.95	2.1	8	....	....	32
Eggs, 1.06 pounds, 15 cents (105)	.15	.3	1	1	....	13
Butter, 3.93 pounds, $1.07 (106)	1.07	2.4	....	34	....	303
Milk, 31.72 pounds, 87 cents (114)	.87	2.0	11	13	16	224
Cream, thin, 0.53 pound, 5 cents (113)	.05	.1	....	1	....	9
Cheese, pale American, 0.16 pound, 2 cents (108)	.02	....	....	....	....	....
Total animal food	4.64	10.3	57	84	16	1,041
VEGETABLE FOOD.						
Cereals: Rice, *0.86 pound, 7 cents (133); corn* meal, 1.70 pounds, 5 cents (119); rolled oats, 0.47 pound, 3 cents (131); hominy, 0.42 pound, 1 cent (126); wheat breakfast food, 0.39 pound, *2 cents (138); shredded* wheat, *0.58 pound,* 7 cents (143); flour, bread, 1.74 pounds, 3 cents (122); flour, graham, 1.48 pounds, 6 cents (124); flour, entire wheat, 0.83 pound, 3 cents (123); bread, wheat, 6.85 pounds, 20 cents (147); samp, 0.60 pound, 2 cents (134); spaghetti, 0.50 pound, 5 cents (135)	.64	1.4	11	2	72	350
Sugars, starches, and oils: Sugar, cut loaf, 0.72 pound, 5 cents (163); sugar, granulated, 7.32 pounds, 33 cents (163); sugar, powdered, 0.28 pound, 1 cent (163); molasses, dark, 2.20 pounds, and molasses, light, 0.89 pound, 5 cents (165); cocoa, 0.08 pound, 2 cents (168); oil, olive, 0.28 pound, 8 cents (171)	.54	1.2	1	3	106	455
Vegetables: Beans, pea, 1.08 pounds, 7 cents (177); beans, lima, 1.20 pounds, 8 cents (176); carrots, 0.26 pound, 1 cent (182); celery, 0.72 pound, 9 cents (183); lettuce, 0.89 pound, 7 cents (187); onions, 0.14 pound, 1 cent (189); *parsley, 1 cent; peas, split, 0.44 pound, 1 cent* (195); potatoes, sweet, 1.26 pounds, 10 cents (198); potatoes, white, 10.18 pounds, 16 cents (196); tomatoes, canned, 6.75 pounds, 38 cents *(209)*; turnips, *0.88* pound, 4 cents (212)	1.03	2.3	8	2	38	202

TABLE 3.—*Weights and cost of food and nutrients in dietary study No. 3a*—Continued.

Food consumed during the entire study (3 days).		Cost, nutrients, and fuel value of food per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
VEGETABLE FOOD—continued.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Fruits, nuts, etc.: Bananas, 4 pounds, 19 cents (218); dates, 2 pounds, 10 cents (230); lemons, 1.69 pounds, 9 cents (236); prunes, 1.50 pounds, 7 cents (247); peanuts, 0.66 pound, 4 cents (254)	0.49	1.1	2	3	25	135
Total vegetable food	2.70	6.0	22	10	241	1,142
Total food	7.34	16.3	79	94	257	2,183
Beverages, condiments, etc	.27	.6				

In this experiment the amount of materials rejected in the kitchen and at the table was 11 per cent of the total food purchased; but as it includes both refuse and waste, no deduction can be made for amounts of nutrients wasted.

The food actually supplied during this period furnished practically just the amount of protein, but less than the amounts of the other food elements and energy estimated for the proposed menu.

DIETARY OF HIGH COST (No. 4a).

The most expensive of the four diets, costing 53 cents per person per day, was supplied in a study which covered three days, namely, April 30 to May 2, inclusive. It was especially desired in this case to observe the kind of food for which the unhampered purchaser naturally spends the most money, to discover which of the three nutritive elements, if any, would be used in excess under the circumstances, and to compare the percentage of waste with that observed in the other dietaries of lower cost.

The menus for the three days were as follows:

Daily menu.

WEDNESDAY, APRIL 30.

Breakfast.—Strawberries, shredded-wheat biscuit, broiled bluefish, potato balls with parsley dressing, popovers.

Luncheon.—Fricasseed oysters in croustades, stuffed potatoes, peas, Roman lettuce salad with full cream cheese, coffee.

Dinner.—Clear barley soup, braised fowl with mushroom sauce, boiled rice, asparagus, lettuce salad, cheese wafers, orange bomb glace, angel cake.

THURSDAY, MAY 1.

Breakfast.—Oranges, rolled-oat breakfast food, eggs poached in cream (served on toast), white corn bread.

Luncheon.—Cream of corn soup with popcorn, salmon creams with sauce hollandaise, potato roses, hot graham rolls, strawberry queen of puddings with thin cream.

Dinner.—Victoria (chicken soup), broiled shad roe with maître d'hotel sauce, horseradish sandwiches, roast beef (rump), Yorkshire pudding, roasted potatoes, creamed turnips, June fruit salad, Camembert cheese canapés, coffee.

FRIDAY, MAY 2.

Breakfast.—Grape fruit, wheat breakfast food, rump steak (garnished with water cress), baked potatoes, buttered toast, orange marmalade.

Luncheon.—Cream of asparagus soup, ragoût of duck, lettuce and orange salad, brown bread sandwiches filled with cream cheese and water cress, wheat-bread sandwiches filled with cucumbers dressed with maître d'hotel butter, caramel charlotte russe.

Dinner.—Clear tomato soup, broiled mackerel garnished with lemon and parsley, cucumbers with French dressing, potatoes with maître d'hotel dressing, spinach on toast, chicory salad, cheese croquettes, tutti-frutti ice cream, coffee.

Heavy cream was served with coffee in the morning. Thin cream was furnished with cereals and with strawberries at breakfast, and was used for poaching the eggs. At 11 o'clock a luncheon of milk and crackers not mentioned in the menus was served, and the amounts eaten have been included in the tables. Butter was served at table in the morning and at noon, and was freely used in cooking. When no substitute is mentioned white or graham bread was served at each meal. Plain salads were dressed with seasoned olive oil and vinegar.

The nutritive value of the proposed menu was calculated as usual, but these figures are omitted, as the menu actually served differed very materially from the one on which the calculations were based.

The details of the study follow.

TABLE 4.—*Weights and cost of food and nutrients in dietary study No. 4a.*

Food consumed during whole study (3 days).		Cost, nutrients, and fuel value of food per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Roast, rump, 4.69 pounds, 71 cents (15); steak, rump, 2.7 pounds, 42 cents (30)	1.13	2.7	12	15	....	182
Pork, etc.: Lard, 0.06 pound (62)	......	......	......	1	....	9
Poultry: Duck, 3.65 pounds, 73 cents (74); fowl, 6.41 pounds, 96 cents (75)	1.69	4.0	15	17	....	211
Fish: Bluefish, 2.88 pounds, 35 cents (77); mackerel, 3.5 pounds, 64 cents (92); oysters, 3.1 pounds, 53 cents (93); salmon, 1.63 pounds, 29 cents (95); shad roe, 1.19 pounds, 50 cents (100)	2.31	5.5	15	5	1	109
Eggs, 8.13 pounds, $1.10 (105)	1.10	2.6	10	8	....	111
Butter, 7.88 pounds, $2.57 (106)	2.57	6.1	1	7	....	66
Cream: Heavy, 6 pounds, $1.50 (113); thin, 3.19 pounds, 36 cents (113)	1.86	4.4	3	18	5	192
Milk, 36.28 pounds, $1.16 (114)	1.16	2.8	13	16	20	274
Cheese: Plain, 0.35 pound, 5 cents (108); cream, 0.58 pound, 33 cents (111); Camembert, 0.15 pound, 5 cents (109)	.43	1.0	3	4	....	48
Total animal food	12.25	29.1	72	91	26	1,202

TABLE 4.—*Weights and cost of food and nutrients in dietary study No. 4a*—Continued.

Food consumed during whole study (3 days).		Cost, nutrients, and fuel value of food per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Barley, 0.1 pound (116); rice, 0.54 pound, 3 cents (133); flour, bread, 4.72 pounds, 10 cents (122); flour, graham, 2.43 pounds, 6 cents (124); corn meal, yellow, 0.21 pound, 1 cent (120); corn meal, white, 0.49 pound, 2 cents (119); rolled oats, 0.47 pound, 3 cents (131); wheat breakfast food, 0.38 pound, 2 cents (138); shredded wheat, 0.5 pound, 6 cents (143); bread, white, 9.35 pounds, 28 cents (147); bread, graham, 2.21 pounds, 6 cents (145); crackers, Boston, 0.24 pound, 2 cents (154); salted wafers, 0.31 pound, 7 cents (161)	0.76	1.8	24	5	149	737
Sugars, starches, etc.: Sugar, granulated, 5.37 pounds, 29 cents (163); sugar, loaf, 1.44 pounds, 10 cents (163); sugar, powdered, 0.96 pound, 6 cents (163); molasses, 2 pounds, 4 cents (165); olive oil, 1.3 pounds, 33 cents (171); honey, 0.21 pound, 12 cents (164); cocoa, 0.16 pound, 7 cents (168)	1.01	2.4	1	14	101	533
Vegetables: Asparagus, 5.26 pounds, 90 cents (174); corn, canned, 1.3 pounds, 14 cents (184); cucumbers, 3.5 pounds, 50 cents (186); lettuce, 1.55 pounds, 16 cents (187); mushrooms, 0.52 pound, 38 cents (188); onions, 0.69 pound, 2 cents (189); parsley, 5 cents; peas, 3.63 pounds, 28 cents (193); potatoes, 23.48 pounds, 43 cents (196); romaine, 0.81 pound, 25 cents (202); turnips, 3.16 pounds, 10 cents (212); water cress, 0.28 pound, 10 cents (213)	3.31	7.9	17	1	71	361
Fruits, nuts, etc.: Almonds, 0.11 pound, 4 cents (252); candied fruit, 0.94 pound, 32 cents (220); grape fruit, 5.87 pounds, 80 cents (234); bananas, 1.41 pounds, 6 cents (218); lemons, 1.44 pounds, 9 cents (236); oranges, 9.69 pounds, 29 cents (238); orange marmalade, 0.50 pound, 6 cents (237); peanuts, salted, 0.53 pound, 37 cents (255); pineapples, canned, 2.75 pounds, 38 cents (244); strawberries, 5.96 pounds, $1.75 (250)	4.16	9.9	4	4	43	224
Total vegetable food	9.24	22.0	46	24	364	1,855
Total food	21.49	51.1	118	115	390	3,057
Beverages, condiments, etc	1.12	3.0	....	....	....	....

In spite of the fact that the amounts of materials rejected at the table and in the kitchen were as large in this as in either of the other studies, the quantities of nutrients and energy in the food used in this study were still very large, being actually greater than is called for by the common dietary standard for a man at light to moderate muscular work.

CONCLUSIONS.

Two of the experimental studies were carried on for only three days; the other was continued for a week, and the study under the usual conditions for two weeks. It would have been more satisfactory to have made all the studies of at least a week's duration, but it was not practicable. However, the results of the investigations as a whole are quite satisfactory; and while they are not sufficient to warrant final conclusions, some interesting deductions may be drawn from them.

The results of the four studies are summarized in the following table, which includes for the sake of comparison the quantities of nutrients as estimated from the proposed menus in two studies:

TABLE 5.—*Summary of results of dietary studies at Boston School of Housekeeping.*

	Cost.	Protein.	Fat.	Carbohydrates.	Energy.
	Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Usual diet	28.1	93	156	349	3,156
Diet of medium cost:					
Food estimated		98	123	348	2,878
Food served	23.1	94	131	289	2,700
Diet of low cost:					
Food estimated		80	126	348	2,833
Food served	16.3	79	94	257	2,183
Diet of high cost	51.1	118	115	390	3,057

The quantity of protein in the diet of the group under the usual conditions of the school was practically the same as that of the commonly accepted standard for women at light to moderate muscular work, but the quantity of energy was more than 25 per cent above that of the standard, owing to the fact that the amounts of fat and carbohydrates in the diet were rather liberal.

As compared with the results of dietary studies made elsewhere, the cost in this study, 28 cents per woman per day, was rather high, especially in view of the fact that much of the food was bought at wholesale rates. In the average of 18 studies of professional men's families made in different parts of the country the diet, which was purchased at retail, cost only 26 cents per man per day, while it supplied 108 grams of protein and 3,300 calories of energy. In seven studies made in New York City the diet, which was believed to be rather expensive, cost on an average, at retail prices, 26 cents per man per day, and furnished 138 grams of protein and 3,747 calories of energy. In a dietary study with a women students' club at North Dakota Agricultural College[a] the cost of the diet was only 14 cents per woman per day, yet the food supplied 70 grams of protein and 2,795 calories of energy per woman per day, and in a study at Lake Erie College[a] food costing 18 cents supplied 78 grams of protein and 2,835 calories of energy per woman per day.

When the expenditure for food was limited to a moderate sum, under the experimental conditions in the studies at the School of Housekeeping, the cost per woman per day was 23 cents, or just 5 cents less than in the study under usual conditions. The food used in this study supplied almost exactly the same quantity of protein, but 450 calories of energy less per woman per day than was found in the regular dietary. As regards the dietary of medium cost, it may be said in general that the meals were pleasing and satisfactory

[a] U. S. Dept. Agr., Office of Experiment Stations Bul. 91.

to the family. That they were sufficiently nourishing is shown by their calculated food value as compared with the commonly accepted standard and by the continued good health of the family.

The results of this study as compared with that of the dietary under usual conditions suggest what it is possible to do in the way of decreasing the cost of the diet by careful planning. The ordinary diet, while not strictly limited in cost, was provided by a person with a general knowledge of the relations between cost and nutritive value; yet the diet of smaller cost was quite as satisfactory and could easily have been made equal to the other in fuel value, as it was in protein, without adding anything to the cost.

In the dietary of low cost the expenditure per woman per day was only 16 cents, and the food supplied only 79 grams of protein and 2,183 calories of energy. These quantities are considerably lower than in either of the preceding studies. The low cost was secured largely by using less expensive food materials than were usually purchased. In some cases the kinds of food were different from those ordinarily used, as for instance cheaper cuts of meat, while in other cases the kinds of food were similar in kind to those to which the family was accustomed, but were of a cheaper grade.

With regard to the daily fare in this study, it may be said that while it was certainly nourishing and was readily accepted by those interested in the experimental side of the work it did not find favor with the larger portion of the family, who had no special interest in the investigation and preferred a more elaborate menu. Assuming that these latter young women are fairly representative as regards their likes and dislikes, it would seem that this grade of food can not be recommended as satisfactory for boarding schools.

Of all the diets the most expensive was the one preferred by those not particularly interested in the experimental side of the study. In this case the food cost 51 cents per woman per day, and the quantity of protein supplied was more than 25 per cent larger than that of the regular dietary, though the quantity of energy was a trifle smaller, owing to the fact that the amount of fat eaten was rather small. The increase in the quantity of protein was due largely to the use of larger quantities of animal foods, such as eggs, dairy products, and various kinds of meat. There is a very common tendency, when the expenditure for food is practically unrestricted, to increase the amounts of this class of food materials, which are all more or less rich in protein, and which are at the same time relatively expensive. These and fancy foods and out-of-season articles always raise the cost of the diet out of proportion to the actual nutritive value.

It will be noticed that in the two studies in which the quantities of nutrients of the proposed diet were estimated these differed somewhat from the quantities in the foods actually used. In both cases

there was practically an agreement between the quantities of protein as estimated and as used. In the diet of medium cost the quantities of fat were as close as could be expected, but the amount of carbohydrates in the food used was appreciably smaller than in the estimate. In the diet of low cost the quantities of both fat and carbohydrates in the food used were noticeably smaller than the estimated amounts. These differences are not surprising, nor altogether unexpected, and there are several reasons for them. For instance, it was impossible to anticipate, in every case, the mental effect produced upon the family. The appetites of some were undoubtedly affected by the knowledge that their food was being studied and was of a definite cost. Neither could those making the study know, in detail, the personal tastes and exactions of all the members of the family, and it appeared that they differed widely in their acceptance of certain flavors and methods of serving. It was also impossible to control the amount of muscular exercise taken, and, hence, this was irregular both in character and amount. The possible effect of weather upon appetite was another uncertain factor which must be recognized. These are some of the elements which account for unexpected variations in quantities eaten. The results of the investigation as a whole show plainly the impossibility of providing a universally satisfactory bill of fare, as long as the attitude of people toward their food is so largely a question of personal whim. They do show, however, that it is possible to provide a diet of a definite cost which may vary within rather wide limits and which shall at the same time supply the protein and energy called for by the commonly accepted dietary standards.

A DIETARY STUDY AT THE BOSTON SCHOOL OF HOUSEKEEPING, 1901.

By Susannah Usher, S. B.,
Instructor, Boston School of Housekeeping,
AND
Bertha M. Terrill.

INTRODUCTION.

For instruction in the practical application of dietary studies, a class at the Boston School of Housekeeping was required to plan menus for its own meals for one week, the cost of the food materials not to exceed 25 cents per woman per day, and the diet for the week to furnish on the average the daily quantities of nutrients and energy called for by the commonly accepted standard for a woman performing a moderate amount of muscular work, i. e., 90 grams of protein and 2,450 calories of energy. A summary of this experiment which was carried on under the direction of the instructors and fellows of the Boston School of Housekeeping in 1901 has been already published.[a] A detailed account of the work follows:

After the menus had been decided upon and a day for the beginning of the study was fixed, account was taken of all the food materials on hand before the study began. Record was also kept of all those purchased during the week. From the sum of these the quantities left on hand at the close were deducted and the difference taken as the amounts used during the study. None of the foods was analyzed. The nutritive value of all food materials was assumed from the averages for similar articles given in a previous publication of this Office.[b] The percentages of nutrients assumed for the food materials are given in Table 29 of the Appendix.

This study continued seven days during the latter half of April, 1901, the season being cold and very backward. The family or group included in the study consisted of 16 women students. They were not all present at every meal, while at several meals there were guests. As is usual, an account was kept of the number of persons present at each meal, and from such data were calculated the equivalent number of meals for one person and the equivalent number of days. There were 297 meals served, which was equivalent to one woman for ninety-nine days.

[a] The Cost of Food. Mrs. Ellen H. Richards, Boston, 1901, p. 111.

[b] U. S. Dept. Agr., Office of Experiment Stations Bul. 28, revised.

DAILY MENUS.

Experience had taught what dishes would be tolerated and what would be refused by the members of the class, and those preparing the menus governed themselves accordingly. The menus selected are given below. Doubtless the absence of some common dishes is due to the preparation of a "black list" by the class a few days before the study began.

SUNDAY.

Breakfast.—Wheat breakfast food,[a] baked beans, brown bread, coffee, cocoa, or milk.

Luncheon.—Brown and white bread sandwiches, sliced oranges, cake, cocoa.

Dinner.—Soup, saltines, roast fowl (stuffed), hominy, cranberries, lettuce salad with French dressing, ice cream, cake.

MONDAY.

Breakfast.—One-half shredded-wheat biscuit, boiled egg, graham muffins, apple sauce, coffee, cocoa, or milk.

Luncheon.—Hashed chicken on toast, fried hominy, cookies, stewed apricots, tea.

Dinner.—Soup with rice, rib-roll roast, Irish potatoes (mashed), tomatoes, lemon jelly, with bananas and nuts.

TUESDAY.

Breakfast.—One-half orange, wheat breakfast food, creamed codfish, corn-meal muffins, coffee, cocoa, or milk.

Luncheon.—Vegetable soup, omelet, brown betty, cream.

Dinner.—Split-pea soup, veal roast, Irish pototoes, creamed onions, lettuce salad, saltines, cottage pudding, chocolate sauce.

WEDNESDAY.

Breakfast.—Wheat breakfast food, cream toast, bacon, baked apples, coffee, cocoa, or milk.

Luncheon.—Irish stew with dumplings, fruit salad, cookies, cocoa.

Dinner.—Chicken soup, roast leg of mutton, potatoes, beets, Norwegian dessert.

THURSDAY.

Breakfast.—One-half orange, wheat breakfast food, hash, dry toast, coffee, cocoa, or milk.

Luncheon.—Creamed potatoes, sausage, raised rolls, nut cake, prunelles, tea.

Dinner.—Soup, chicken and veal pie, peas, orange salad, saltines, cracker pudding, cream.

FRIDAY.

Breakfast.—One-half orange, oatmeal, creamed dried beef, corn cake, coffee, cocoa, or milk.

Luncheon.—Fish chowder, rice and mutton croquettes with tomato sauce, salted peanuts, dates.

Dinner.—Tomato soup, baked haddock, hollandaise sauce, mashed potatoes, lima beans, lettuce salad, saltines, suet pudding, lemon sauce.

SATURDAY.

Breakfast.—One-half orange, wheat breakfast food, fish hash, date muffins, coffee, cocoa, or milk.

Luncheon.—"English monkey" (a sort of cheese soufflé) on toast, vegetable salad, baking-powder biscuit, chocolate.

Dinner.—Bean soup, Hamburg steak, baked potatoes, carrots and peas, lettuce salad, saltines, chocolate pudding with hard sauce.

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[a] Several kinds were used during the study to give variety.

DETAILS OF THE DIETARY STUDY (No. 5a).

The details of the dietary study are given in the following table:

TABLE 6.—*Weights and cost of food and nutrients in dietary study No. 5a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Rib roll, 7 pounds, 88 cents (10); shank, 9 pounds, 45 cents (17); dried, 1.13 pounds, 34 cents (4); suet, 0.44 pound, 2 cents (35); gelatin, 0.13 pound, 10 cents (6). Veal, loin, 4.63 pounds, 60 cents (41). Lamb, leg, 9.06 pounds, $1.18 (54)	3.57	3.6	24	19	....	265
Poultry: Fowl, 14.13 pounds, $1.84 (75)	1.84	1.9	9	8	....	107
Pork: Salt pork, 0.45 pound, 5 cents (65); bacon, 1 pound, 15 cents (55); ham steak, 3.38 pounds, 37 cents (70); sausage, 2 pounds, 24 cents (66); lard, 0.42 pound, 4 cents (62)	.85	.9	4	14	....	141
Fish: Cod, fresh, 4.25 pounds, 26 cents (79); cod, salt, 0.9 pound, 11 cents (80); haddock, 8 pounds, 48 cents (84)	.85	.9	6	....	....	24
Eggs, 7.5 pounds, 85 cents (105)	.85	.9	4	3	....	43
Butter, 12.28 pounds $3.07 (106)	3.07	3.1	....	48	....	427
Milk, 84.7 pounds, $2.31 (114)	2.31	2.3	13	16	19	270
Cream, 3.78 pounds, 44 cents (113)	.44	.4	....	3	1	31
Cheese, 0.33 pound, 5 cents (108)	.05	....	1	1	....	13
Total animal food	13.83	14.0	61	112	20	1,321
VEGETABLE FOOD.						
Cereals: Oatmeal, 0.56 pound, 3 cents (130); wheat breakfast food, 0.56 pound, 7 cents (136); wheat breakfast food, 0.56 pound, 7 cents (137); wheat breakfast food, 0.56 pound, 7 cents (138); wheat breakfast food, 0.56 pound, 7 cents (139); shredded wheat, 0.34 pound, 5 cents (143); wheat breakfast food, 0.56 pound, 7 cents (141); hominy, 1 pound, 3 cents (126); rice, 0.5 pound, 5 cents (133); flour, bread, 27.28 pounds, 67 cents (122); flour, pastry, 4.66 pounds, 11 cents (125); corn meal, 3.69 pounds, 7 cents (119); graham meal, 0.75 pound, 2 cents (124); Boston crackers, 0.91 pound, 7 cents (154); saltines, 1.94 pounds, 29 cents (161)	1.74	1.8	23	4	150	728
Sugars, starches, and oils: Sugar, granulated, 15.59 pounds, 87 cents (163); sugar, powdered, 0.31 pound, 5 cents (163); sugar, lump, 2.63 pounds, 18 cents (163); molasses, 2.75 pounds, 9 cents (165); chocolate, 0.38 pound, 14 cents (167); cocoa, 0.31 pound, 18 cents (168); olive oil, 0.75 pound, 31 cents (171)	1.82	1.8	1	5	94	425
Vegetables: Beans, lima (dry), 0.83 pound, 6 cents (176); beans, pea, 0.7 pound, 6 cents (177); beets, 3.5 pounds, 12 cents (180); carrots, 2.27 pounds, 7 cents (182); lettuce, 7 pounds, $1.25 (1,87); onions, 2.53 pounds, 7 cents (189); peas, canned, 6 pounds, 45 cents (192); peas, split, 0.56 pound, 5 cents (195); potatoes, 27.21 pounds, 55 cents (196); tomatoes, canned, 4 pounds, 17 cents (209); turnips, 0.55 pound, 1 cent (212)	2.86	2.9	6	1	32	161
Fruits, nuts, etc.: Apples, 9.13 pounds, 27 cents (214); apricots, 0.75 pound, 11 cents (216); bananas, 1.2 pounds, 6 cents (218); cranberries, 1.5 pounds, 9 cents (227); currants, dried, 0.16 pound, 4 cents (229); dates, 2.28 pounds, 11 cents (230); lemons, 3 pounds, 25 cents (236); oranges, 6.75 pounds, 65 cents (238); prunelles, 0.5 pound, 7 cents (246); raisins, 0.31 pound, 3 cents (248); peanuts (meats), 1.69 pounds, 14 cents (255); walnuts (meats), 0.56 pound, 25 cents (257)	2.07	2.1	3	5	21	141
Total vegetable food	8.49	8.6	33	15	297	1,455
Total food	22.32	22.6	94	127	317	2,776
Beverages, condiments, etc. (cost)	.84	.8	....	....	....	....

In planning this dietary the estimates were made for a family of six and were multiplied to suit the existing case. The final results given in the table above agreed very well with the estimates. The meals provided were quite satisfactory. Only two of the persons found any of them wholly unsatisfactory, and all declared that they "bought no more candy than usual;" that is, they did not have any special desire to supplement their diet with extra sweets. This was very gratifying in view of the difference in favor of the cost of this diet as compared with that of their usual fare.

CONCLUSIONS.

Judging by this study it seems fair to say that a reasonably satisfactory dietary of moderate cost, which will supply the necessary nutrients and energy, can be provided when sufficient care is given to planning a menu and selecting the food. It is a matter of common experience that it is easier to provide a diet for a given sum when the family is rather large, since it is possible to buy advantageously when large quantities are purchased and the amount of refuse and kitchen and table waste is believed to be proportionally smaller. Further studies are, of course, needed before general deductions can be drawn, but in view of the facts brought out by the present study in connection with the results of general experience and previous investigations it seems fair to say that the cost of the daily fare may be often diminished by intelligent planning of the menu in such a way that a reasonable proportion of moderate-priced foods is used and other justifiable economies are practiced without making the diet so plain that it is unattractive.

The latter fact has been illustrated on a preceding page of this bulletin (see page 24) in a comparison of the ordinary diet of the school with a diet quite as satisfactory and potentially equal in nutritive value, but costing over 20 per cent less. The present dietary was almost identical in cost and nutritive value with the more economical of the two just referred to.

DIETARY STUDY AT THE BIBLE NORMAL COLLEGE, 1902.

By Bertha M. Terrill,
Professor of Home Economics, Hartford School of Religious Pedagogy.

INTRODUCTION.

In February, 1902, the students of the Bible Normal College, situated then in Springfield, Mass. (now in Hartford, Conn., and affiliated with the Hartford Theological Seminary and designated School of Religious Pedagogy), voted to save a sum of money, which they desired to raise for a special object, by reducing the cost of their table board. They had been paying $3 per week for table board at the time, or very nearly 43 cents per person per day, which of course included the cost of fuel, preparation, and service, estimated to be 10.6 cents per person per day. Learning that it has been found possible to provide a balanced and nourishing diet for 10 cents per man per day for the raw food, they entered eagerly into an experiment with a diet to cost that amount for food materials only, the cost of preparation, etc., to remain the same as before, making the total cost of the daily food as served 20.6 cents per person, or 22.4 cents less than their ordinary diet. There were 30 students interested in this project, and it was planned to continue the investigation three days, as this would suffice to save the $20 desired.

It was believed that the results of a dietary study of the family during this period would be of some value, as showing some of the possibilities of a practical application of the results of nutrition investigations. The meals provided were enjoyed, and at the end of three days, although the desired sum had been saved and there was no longer this incentive, all the persons concerned were sufficiently interested in the trial to ask to have it continued three days longer when they learned that the results for such a period would be of considerable more value from a scientific standpoint than those of a study carried on for three days only. The details of the investigation are given herewith.

METHODS.

The method of conducting the investigation was essentially the same as that usually followed. After a study of the available food supply and the cost of food in the local market, menus were prepared which it was believed would be fairly satisfactory and which would fulfill

the requirements as regards cost and nutritive value. The amounts of the various materials which it was calculated would be required during the period were then set aside to be used as needed, the plan being to provide generously of the chief and less expensive dishes, with enough of the more expensive foods to give the needed variety. Whatever material was left at the close of the study was subtracted from the amount provided and the difference was assumed to represent the amount used. Generally speaking, the estimated amounts proved amply sufficient, but it was found necessary during the study to purchase some articles in addition to those planned for, and all such foods were also included in estimating the total amounts eaten.

None of the foods was analyzed. The composition of all but two of the different articles was assumed from average values for similar food materials.[a] The composition of the chocolate candy (fudge) was calculated from that of the materials used in making it, and the composition of apple jelly was taken from a compilation not yet published. The assumed values for the composition of the materials eaten in this study are included in Table 29 of the Appendix.

DAILY MENUS.

The menus for the different days covered by the study were as follows:

SATURDAY, FEBRUARY 8.

Breakfast.—Oatmeal and top of milk, fish cakes, toast (with a little butter), prunes, milk and cereal coffee.

Dinner.—Beef soup, croutons, beans (baked with pork), brown bread, apricot shortcake.

Supper.—Sandwiches (cheese and jelly), white and graham bread (no butter), sliced bananas, milk.

SUNDAY, FEBRUARY 9.

Breakfast.—Corn-meal mush and top of milk, baked beans, buns, milk and cereal coffee.

Dinner.—Split-pea soup and crackers (crisped), potted beef, brown sauce, baked potatoes, bread, rice with milk and sugar.

Supper.—Brown-bread sandwiches (with a little butter), white-bread sandwiches with date and peanut filling without butter, cocoa, popcorn salted.

MONDAY, FEBRUARY 10.

Breakfast.—Oatmeal with top of milk, cream toast, cereal coffee.

Dinner.—Baked-bean soup, crisp crackers, Hamburg steak balls, brown sauce, hominy, turnip, peanuts and dates.

Supper.—Potato and beet salad, gingerbread, cheese, bread, milk.

TUESDAY, FEBRUARY 11.

Breakfast.—Wheat breakfast food and dates, creamed codfish, muffins (with little butter), milk and cereal coffee.

Dinner.—Beef stew with biscuits, bread-pudding, bread.

Supper.—Scalloped meat and potato, bread (with butter), prunes, chocolate candy "fudge."

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[a] U. S. Dept. Agr., Office of Experiment Stations Bul. 28, revised.

WEDNESDAY, FEBRUARY 12.

Breakfast.—Oatmeal with top of milk, hash, corn cake, milk and cereal coffee.

Dinner.—Vegetable soup, croutons, baked stuffed beef's heart, brown sauce, rice, cornstarch blanc mange, caramel sauce.

Supper.—Potato and celery salad, white and graham bread, fried corn-meal mush, sirup.

THURSDAY, FEBRUARY 13.

Breakfast.—Corn-meal mush with top of milk, hashed meat on toast, milk and cereal coffee.

Dinner.—Salt salmon, drawn butter sauce, baked potatoes, parsnips, bread, evaporated apple shortcake.

Supper.—Cold sliced beef's heart, creamed potatoes, cocoa, bread (white and graham), ginger snaps.

DETAILS OF THE DIETARY STUDY (No. 6a).

The family in this experiment consisted of 30 students—26 women and 4 men—ranging in age from 25 to 45 years. Considering the 4 men as equivalent to 5 women as regards food consumption, the family for six days was equivalent to 186 women for one day.

The amounts, cost, and nutrients of the food eaten are given in the table following. The numbers in parentheses following each food material in the table refers to the composition given at the same number in Table 29 in the Appendix.

TABLE 7.—*Weights and cost of food and nutrients in dietary study No. 6a.*

Food consumed during the entire study (6 days).		Cost, nutrients, and fuel value per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Hearts, 11 pounds, 38 cents (7); round, 10.5 pounds, $1.05 (28); rump, 10 pounds, 80 cents (13); shank, fore, 3 pounds (20); brisket (stew), 7.25 pounds, 50 cents (1a)	2.73	1.5	15	19	....	229
Pork: Bacon, 2 pounds, 30 cents (57); salt pork, 2 pounds, 18 cents (64); lard, 1 pound, 12 cents (62)	.60	.3	1	8	....	75
Fish: Cod, salt, 4 pounds, 12 cents (81); salmon, salt, 5 pounds, 40 cents (97)	.82	.4	5	2	....	38
Eggs, 1 pound, 33 cents (105)	.33	.2	....	....	....	....
Butter, 9 pounds, $2.25 (106)	2.25	1.2	....	19	....	169
Cheese, 2 pounds, 30 cents (108)	.30	.2	1	2	....	22
Milk, 210 pounds, $2.70 (114)	2.70	1.4	17	20	26	350
Total animal food	9.73	5.2	39	70	26	883
VEGETABLE FOOD.						
Cereals: Corn meal, 10 pounds, 29 cents (119); pop corn, 1 pound, 5 cents (132); hominy, 1.41 pounds, 5 cents (126); oatmeal, 4.5 pounds, 15 cents (130); rice, 4 pounds, 28 cents (133); graham flour, 10 pounds, 25 cents (124); white flour, 66 pounds, $1.55 (122); crackers, Boston, 0.75 pound, 4 cents (154)	2.66	1.4	27	4	178	856
Sugars, starches, etc.: Sugar, granulated, 20 pounds, $1 (163); molasses, 2.33 pounds, 36 cents (165); cornstarch, 0.33 pound, 2 cents (172); cocoa, 1 pound, 17 cents (168); chocolate, 0.12 pound, 5 cents (167)	1.60	.9	1	1	54	229

TABLE 7.—*Weights and cost of food and nutrients in dietary study No. 6a*—Continued.

Food consumed during the entire study (6 days).		Cost, nutrients, and fuel value per woman per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
VEGETABLE FOOD—continued.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Vegetables: Beans, lima, 2 pounds, 18 cents (176); beans, pea, 2.44 pounds, 10 cents (177); beets, 1.25 pounds, 4 cents (180); cabbage, 5 pounds, 19 cents (181); carrots, 1.25 pounds, 2 cents (182); celery, 2.06 pounds, 10 cents (183); parsnips, 4.09 pounds, 15 cents (191); peas, split, 1.68 pounds, 13 cents (195); potatoes, 86 pounds, $1.47 (196); turnips, 5.5 pounds, 7 cents (212)	2.36	1.3	7	1	41	201
Fruits, nuts, etc.: Apricots, dried, 1.5 pounds, 17 cents (227); bananas, 7 pounds, 20 cents (218); dates, 2 pounds, 12 cents (230); prunes, 2 pounds, 18 cents (247); raisins, 0.25 pound, 2 cents (248); peanuts, 2 pounds, 25 cents (255); crab-apple jelly, 0.2 pound, 5 cents (225)	1.07	.6	1	2	13	74
Total vegetable food	7.69	4.2	36	8	286	1,360
Total food	17.42	9.4	75	78	312	2,243

The cost of the diet, 9.4 cents per woman per day, was just within the limit set, but the quantities of nutrients and energy (75 grams of protein and 2,243 calories) were somewhat smaller than was intended. In planning the menu for the first three days, which was done before the experiment began, special effort was made to provide a diet which would furnish for persons occupied as these were sufficient nutrients and energy, according to the commonly accepted American dietary standard, namely, 90 grams of protein and 2,450 calories of energy per day for a woman at light to moderate work. In arranging the menus for the last three days, which were not in the original plan, time was lacking to make as careful estimates of the quantities of nutrients and energy in the diet provided, and in consequence the actual nutritive value of the food consumed during the latter part of the study, especially as regards carbohydrates and energy, was somewhat smaller than during the first half; so that the average per woman per day for the whole six days was slightly lower than it was desired to have it, and lower than it need have been if the decision to carry on the experiment for six days had been made in time to calculate the entire ration more carefully.

The low cost of the diet in this experiment was made possible by the selection of simple and inexpensive food materials and by reducing the quantities of some foods commonly used rather abundantly, as meat and butter. The plan was, as already explained, to provide generously of the less expensive but nutritious materials, and to include only enough of the more expensive, but not more nutritious articles, to give variety. Most of the students felt quite satisfied with the food. The curtailing of the amount of butter served at the table was considered the greatest deprivation; a small pat, about half the customary size,

being served to each where butter is indicated with bread on the menu. Two students, who preferred a hearty breakfast with steak or chops, felt the loss of meat especially. On the other hand, three who were accustomed to a luncheon of crackers during the forenoon omitted it voluntarily, reporting that this was done simply because they felt no need of supplementing the breakfast provided. With these exceptions, it was the opinion of the family that, generally speaking, they would not have noticed any marked change from their usual fare.

The importance from the standpoint of economy of selecting foods which are nourishing rather than those having a low food value but which please the palate and add to the attractiveness of the diet, is illustrated by a dietary study made of a family in New Jersey[a] in which it was found that $2.16 was expended in three weeks for oranges and $3 for celery, making a total of $5.16 for these two articles, which together furnished only 150 grams of protein and 6,445 calories of energy. During the same period $5.16 was also expended for cereal foods and sugars, which supplied 3,375 grams of protein and 184,185 calories of energy, or about twenty-five times the amount furnished by the oranges and celery. Of course, the sum expended for these articles was not excessive and they undoubtedly helped to make the diet palatable and pleasing, a by no means unimportant consideration, but it is evident that they were not economical sources of nutritive material.

In the present investigation it was found to be well worth while to use special care in arranging the dishes for serving, that they might be as appetizing in appearance as possible, and for the same reason the Sunday evening tea was served from a small table by an open fire. Much care was also observed in avoiding waste both by careful preparation and by the use of all "left overs."

The low cost of the diet was doubtless due in part to the fact that it was made up entirely of home-cooked food, as it has been shown by experiments that food thus prepared under favorable conditions is cheaper than that purchased ready cooked. For instance, in some studies made at the Boston School of Housekeeping,[b] it was found that the average cost of a pound of homemade bread, including materials and fuel for baking, was 3.72 cents, or, considering only the cost of materials, 2.94 cents. A pound of baker's bread cost at this time 5.55 cents. If the labor is included, which was valued at 8.5 cents per hour on the assumption that a cook would receive $4 per week, the cost of homemade bread was calculated to be 5.87 cents per pound. However, in most cases it would hardly be fair to include this factor,

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[a] U. S. Dept. Agr., Office of Experiment Stations Bul. 35.

[b] Massachusetts Labor Bul., 1901, No. 19, p. 67.

as a cook would be paid the same wages whether the bread was baked at home or not. Furthermore, the cost of fuel may be lessened provided the bread is baked when a fire is required for some other household purpose.

Studies at the same institution with poultry also showed that the home-cooked article was cheaper than that purchased ready cooked.

GENERAL DEDUCTIONS.

The experiment at the Bible Normal College progressed in a very satisfactory manner throughout. The fact that it was possible to live at all comfortably at so low a figure was wholly novel to many of the students, and there was considerable interest and curiosity manifested at each meal. This fact doubtless helped to make the simple fare seem more appetizing than it might have been if continued week after week. All were convinced that the actual cost of many of the staple articles of diet may be made much less than they had supposed. Their attitude toward the experiment was such as to make it of especial value, as they were for the most part quite unprejudiced and frank in criticising the results.

The economy of the diet may be illustrated by comparing the results with those obtained in the study of a medium-cost dietary at the Boston School of Housekeeping. (See page 24.) While the diet in this case, though very simple, was fully equal in nutritive value to that at the School of Housekeeping, furnishing slightly less protein but slightly more energy, the cost in Springfield, where the foods were bought at retail, was only about three-fifths of that in Boston, where many of the articles were obtained at wholesale prices. This affords an excellent illustration of what can be done when it seems desirable to make the cost of the daily fare as low as is consistent with a reasonably palatable diet.

DIETARY STUDIES IN PHILADELPHIA AND CHICAGO, 1892–93.

By Ellen H. Richards,

Instructor in Sanitary Chemistry Massachusetts Institute of Technology.

AND

Amelia Shapleigh,

Dutton Fellow College Settlement Association.

INTRODUCTION.

During the year 1892–93 observations were made, at the instance of the College Settlement Association, of the food consumption and dietary customs of families with small incomes living in those sections of Philadelphia and Chicago in which the work of the Settlements was carried on. The primary purpose of these investigations was to obtain reliable information regarding the diet of the people of those regions, which could be used in the efforts to help them to improve their material condition. While the dietary statistics gathered then are somewhat less complete and perhaps less accurate than those of similar investigations carried on at the present time, they nevertheless give important facts concerning the dietary customs of families of small incomes, and form a valuable contribution to our knowledge concerning the food consumption of people under different circumstances in life.

In a report [a] made by one of us (A. S.) upon the completion of the investigations the nutritive values of the dietaries thus collected were given as estimated according to such data as were then available regarding the composition and fuel value of food materials, the relative food consumption of persons of different age, sex, and occupation, etc.; only four studies, however, were given in detail. Four of the studies were briefly reported in a discussion of dietaries for wage-earners and their families, contributed by one of us (E. H. R.) to a publication of the New Jersey State Board of Health.[b] The remainder have never hitherto been published. In the present report are given the details of all the dietary studies completed at that time except a

[a] Partial report of Dutton Fellow College Settlement Association, 1892–93.

[b] New Jersey State Board of Health Rpt., 17 (1893), p. 425. See also The Cost of Food, New York, 1901, p. 119.

few in which the statistics were in some respects inadequate. In every case the nutrients and energy of the dietaries have been estimated according to the large amount of analytical and other data accumulated since the studies were made. It is believed that the final results, as here given, are more satisfactory than the earlier estimates, from which they differ somewhat.

Since these investigations were carried out numerous others of a similar nature have been made and reported. Previous bulletins of this Office have given accounts of dietary studies made with families living in the thickly congested districts of New York,[a] Pittsburg,[b] and Chicago;[c] studies of the diet of negroes living in straitened circumstances in Virginia and Alabama,[d] and of Spanish-American families of very limited means living in New Mexico.[e] Studies of the diet of poor families were also made in Hartford, under the auspices of the School of Sociology.[f] A number of foreign investigations have been conducted with families of small incomes or living under conditions common to such families. The recent important work of this character by Paton and his associates[g] in Edinburgh, and that by B. S. Rowntree[h] in York, England, are all the more interesting in this connection because the studies were made by the methods followed at the present time in the United States. All these investigations, like that reported in this bulletin, were actuated by a desire to ascertain the conditions under which such families live, in order to find ways to help them to make a wiser use of their resources in securing adequate nourishment. As a whole, the results obtained have, at least in part, justified the hopes of the investigators, and the experience gained has proved of very great value to many housekeepers.

METHOD OF INQUIRY.

In both Philadelphia and Chicago the families among whom the studies were made were selected at random from the neighborhood of the college settlements, but they were believed to be typical of the region in which the settlement work was being carried on. The attempt was made to include in both places as many different nationalities as possible, in order that the results of the studies might have a wider practical application and be more useful.

The data sought in these studies included the nationality, age, sex,

[a] U. S. Dept. Agr., Office of Experiment Stations Buls. 46 and 116.

[b] U. S. Dept. Agr., Office of Experiment Stations Bul. 52.

[c] U. S. Dept. Agr., Office of Experiment Stations Bul. 55.

[d] U. S. Dept. Agr., Office of Experiment Stations Bul. 71.

[e] U. S. Dept. Agr., Office of Experiment Stations Buls. 40 and 54.

[f] Storrs's Experiment Station Report, 1896.

[g] The Diet of Laboring Classes in Edinburgh.

[h] Poverty: A Study of Town Life, p. 222.

and weight of the different members of the family; the number of meals taken by each; the kinds, amounts, and cost of food consumed during a given period, and, so far as possible, the financial and hygienic conditions at the time of the study. Methods had to be devised for the collection of such data. In some cases it was possible for the investigator to enter the homes and gather the statistics personally, while in others dependence had to be placed on the statistics furnished by the families themselves. To facilitate the work during the prosecution of the studies in Philadelphia, questions of a general nature were formulated which it was hoped would elicit the desired information. These were printed in the form of a small account book, the first part of the book being devoted to the questions concerning the family itself, while the remainder was arranged so that the quantity and cost of each food material purchased each day could be entered on the line on which the name of the material was printed. These books proved useful and were also employed in the Chicago studies, and served to lessen the work when the investigator made the entries and to simplify the matter so that there would be as little chance for error as possible when the statistics were recorded by the housekeeper.

The information gathered in both series of studies was, on the whole, fairly satisfactory, though in several cases where records were kept entirely by the family, some of the statistics recorded were manifestly incorrect. To discover errors the accounts were carefully examined as soon as a study was finished, and questions were asked concerning doubtful entries. In this way explanations and corrections were obtained while the matter was still fresh in mind, and greater accuracy was secured.

The calculations of the results of the studies as given in the present bulletin were made by the same methods as have been noted in previous bulletins reporting studies carried on under the auspices of the Office of Experiment Stations.[a] None of the foods used was analyzed. The composition of nearly all of them was assumed to be that given for similar materials in a former publication of this Office.[b] The composition of a few cooked foods was computed from the composition of the materials used in preparing them and the proportions of each material taken according to a recipe believed to be representative. The percentages of nutrients assumed for any food material used in these studies may be found in Table 29 of the Appendix. The reference numbers in the first column of that table correspond to those given in parentheses following the weight and cost of the food materials in the detail tables of the studies.

The studies as given below have been grouped according to the nationalities of the families, as it was believed this would present the

[a] See list on cover.

[b] U. S. Dept. Agr., Office of Experiment Stations Bul. 28, revised.

fairest comparison of the results, and, furthermore, it would afford some opportunity for noting in how far the dietary habits of the families of foreign birth or parentage had been modified by residence in the United States.

DETAILS OF THE STUDIES IN PHILADELPHIA.

The first half of the year devoted to these investigations was spent in Philadelphia. The work there was done under the auspices of the Philadelphia College Settlement, which, although at that time but recently started, was already in touch with many of the families in the region in which it was located. The helpful attitude of all members of the settlement household and the special kindness of Miss Hancock, a college settlement worker in the neighborhood, secured for the investigator a ready entrance to the homes of the families selected for the studies and insured favorable conditions for the investigation. The attempt was made to establish friendly relations with all the families, and to convince them that the work was undertaken for a useful purpose and not to gratify idle curiosity. That this end was accomplished was shown by the almost uniform readiness with which questions were answered, and by the fact that the people were almost without exception very courteous in every way.

All the investigations in Philadelphia were carried on in the winter season. In the data here reported the families studied included Americans, German, Colored, Irish, Italian-Irish, and German, Russian, and Roumanian Jews. The ways of living of the families made it possible to secure what are regarded as fairly reliable data, a considerable amount of which was recorded by the investigator. In all 25 studies were completed, of which 22 have been considered of sufficient accuracy and completeness to include here. The details of these studies follow.

DIETARY STUDIES OF COLORED FAMILIES (Nos. 7a-11a).

The six dietary studies of which the details are given here were made with colored families.

DIETARY STUDY NO. 7A.

This study was made with a family of two persons, a man and a woman, living in one room, for which they paid 80 cents per week. Their income was about $2.50 per week during the winter season, at which time this study was made. The woman was weak and afflicted with neuralgia. In addition to the food materials included in the table they spent 6 cents for coffee, 8 cents for tea, and 1 cent for pot herbs.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Total number of meals equivalent to	38

Equivalent to one man thirteen days.

DIETARY STUDY NO. 8A.

This family consisted of one man, one woman, and a child 5 years old, all healthy. They rented two rooms for which they paid $1.40 per week.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 5 years old (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	46

Equivalent to one man fifteen days.

DIETARY STUDY NO. 9A.

This family consisted of one man, four women, and four children, aged, respectively, 10, 8, 3 years, and 4 months; the latter was not included in the study. They paid $20 per month rent for six rooms. In addition to the food materials included in the table, they spent $2.29 for sundries during the time of the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Four women (84 meals × 0.8 meal of man), equivalent to	67
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 3 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	120

Equivalent to one man forty days.

DIETARY STUDY NO. 10A.

This family consisted of one man, one woman, and five children, aged, respectively, 11, 9, 7, 5, and 3 years. They were all in fairly good health. They paid $12 a month for three rooms. In addition to the food materials purchased they spent 18 cents for tea during the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 11 years (21 meals × 0.6 meal of man), equivalent to	13
Two children, 9 and 7 years (42 meals × 0.5 meal of man), equivalent to	21
Two children, 5 and 3 years (42 meals × 0.5 meal of man), equivalent to	17
Total number of meals equivalent to	89

Equivalent to one man twenty-nine days.

DIETARY STUDY NO. 11A.

This family consisted of two women, both strong and well. They rented two rooms for $1.65 a week. One woman did washing. In addition to the foods purchased they spent during the study 16 cents for tea and 5 cents for coffee.

The study continued two days. The number of meals taken was 12, equivalent to 10 meals of a man, or equivalent to one man three days.

TABLE 8.—*Weights and cost of food and nutrients in dietary studies of colored families in Philadelphia.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 7a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Pork: Bacon, 0.25 pound, 3 cents (55); shoulder, smoked, 0.5 pound, 7 cents (68); scrapple, 0.5 pound, 4 cents (67); sausage, 1.9 pounds, 27 cents (66)	0.41	3.2	12	43	9	467
Mutton: Sheep's liver, 1 pound, 5 cents (49); neck, 1.5 pounds, 11 cents (50), chops, 0.25 pound, 2 cents (46)	.18	1.4	16	16	2	214
Butter, 0.13 pound, 5 cents (106)	.05	.4	....	4	....	36
Total animal food	.64	5.0	28	63	11	717
VEGETABLE FOOD.						
Cereals: Pudding, 1 pound, 10 cents (258), bread, 7.9 pounds, 31 cents (147)	.41	3.2	27	5	157	781
Vegetables: Beans, 0.95 pound, 5 cents (177); potatoes, 3.5 pounds, 6 cents (196)	.11	.9	10	1	42	217
Total vegetable food	.52	4.1	37	6	199	998
Total food	1.16	9.1	65	69	210	1,715
Dietary study No. 8a.						
ANIMAL FOOD.						
Beef: Round steak, 1 pound, 15 cents (28)	.15	1.0	6	3	....	50
Pork: Ham, 8 pounds, $1.26 (60), sausage, 1 pound, 15 cents (66)	1.41	9.4	38	94	3	1,001
Oysters, 1.5 pounds, 35 cents (95)	.35	2.3	3	1	2	29
Butter, 0.5 pound, 20 cents (106)	.20	1.3	....	13	....	116
Milk, 4 pounds, 16 cents (111)	.16	1.1	4	5	6	85
Total animal food	2.27	15.1	51	116	11	1,281

TABLE 8.—*Weights and cost of food and nutrients in dietary studies of colored families in Philadelphia*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 8a—Continued.						
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Bread, 4.5 pounds, 20 cents (147); rice, 1 pound, 12 cents (133)	0.32	2.1	15	2	96	462
Sugar, 3 pounds, 18 cents (163)	.18	1.2	....	....	91	364
Vegetables: Cabbage, 13.6 pounds, 55 cents (181); sweet potatoes, 7 pounds, 16 cents (198); potatoes, 7 pounds, 16 cents (196)	.87	5.8	13	2	105	490
Fruit: Apples, 9 pounds, 33 cents (214)	.33	2.2	1	1	29	129
Total vegetable food	1.70	11.3	29	5	321	1,445
Total food	3.97	26.4	80	121	332	2,726
Dietary study No. 9a.						
ANIMAL FOOD.						
Beef: Porterhouse, 3.15 pounds, 70 cents (27); shoulder, 4 pounds, 40 cents (19). Veal, chuck, 4 pounds, 68 cents (37). Mutton: Sheep's liver, 2.5 pounds, 20 cents (49)	1.98	5.0	28	15	1	250
Pork: Bacon, 4 pounds, 56 cents (55); ham, 12 pounds, $1.20 (60); lard, 2.5 pounds, 25 cents (62)	2.01	5.0	24	101	....	995
Fish: Cod, 3 pounds, 30 cents (79); mackerel, 2 pounds, 28 cents (91)	.58	1.4	5	1	....	29
Chicken, 4.2 pounds, 76 cents (75)	.76	1.9	7	6	....	81
Eggs, 3 pounds, 60 cents (105)	.60	1.5	4	4	....	52
Butter, 2.13 pounds, 70 cents (106)	.70	1.8	....	20	....	178
Milk, 16.75 pounds, 64 cents (114)	.64	1.6	6	8	10	135
Total animal food	7.27	18.2	74	155	11	1,720
VEGETABLE FOOD.						
Cereals: Barley, pearled, 1 pound, 5 cents (116); rice, 8 pounds, 64 cents (133); hominy, 4 pounds, 20 cents (126); oatmeal, 3 pounds, 10 cents (130); flour, 12 pounds, 40 cents (122); bread, 3 pounds, 15 cents (147); pie, 2 pounds, 20 cents (158)	1.74	4.4	35	7	269	1,278
Sugar, 10 pounds, 50 cents (163)	.50	1.3	....	....	113	452
Vegetables: Potatoes, 28 pounds, 40 cents (196); sweet potatoes, 7 pounds, 10 cents (198); canned tomatoes, 3.75 pounds, 20 cents (209); turnips, 6.25 pounds, 10 cents (212); cabbage, 1.75 pounds, 8 cents (181); beans, 1 pound, 10 cents (177)	.98	2.4	14	2	89	430
Total vegetable food	3.22	8.1	49	9	471	2,160
Total food	10.49	26.3	123	164	482	3,880
Waste: Steak, 1 pound (27); shoulder, 3.9 pounds (19); potatoes, 2.5 pounds (196); sweet potatoes, 6.3 pounds (198)	....	....	13	8	20	203
Total food eaten	....	....	110	156	462	3,677
Dietary study No. 10a.						
ANIMAL FOOD.						
Beef: Shoulder, 1.5 pounds, 16 cents (19); steak, 1.75 pounds, 26 cents (32); roast, 1 pound, 18 cents (12)	.60	2.1	12	9	....	128
Pork: Chops, 1 pound, 14 cents (58); scrapple, 2 pounds, 12 cents (67)	.26	.9	3	10	3	113
Turkey, 8.3 pounds, $1.50 (76)	1.50	5.2	21	24	....	298
Fish: Whitefish, 3 pounds, 15 cents (103); smelts, 1.5 pounds, 15 cents (101)	.30	1.0	7	2	....	46
Butter, 0.88 pound, 35 cents (106)	.35	1.2	....	11	....	98
Milk, 7.3 pounds, 28 cents (114)	.28	1.0	4		6	85
Total animal food	3.29	11.4	47	61	9	768

TABLE 8.—*Weights and cost of food and nutrients in dietary studies of colored families in Philadelphia*—Continued.

Food consumed during the whole study (7 days).	Cost, nutrients, and fuel value of food per man per day.					
Kinds and amounts.	*Cost.*	*Cost.*	*Protein.*	*Fat.*	*Carbohydrates.*	*Fuel value.*
Dietary study No. 10a—Continued.						
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Bread, 12 pounds, 60 cents (147); pudding, 1 pound, 6 cents (258); rice, 1.5 pounds, 12 cents (153); *rolled avena*, 3.75 *pounds*, 21 cents (131); hominy, 1 pound, 5 cents (126)	1.04	5.6	31	8	175	855
Sugar, 3.25 pounds, 20 cents (165)	.20	.7	....	....	51	204
Vegetables: Potatoes, 3.5 pounds, 8 cents (196); sweet *potatoes*, 1.9 *pounds*, 5 *cents* (198); canned tomatoes, 1.75 pounds, 10 cents (209)	.23	.8	2	....	17	76
Fruits: Apples, 3.5 pounds, 20 cents (214)	.20	.7	....	....	6	24
Total vegetable food	1.67	5.8	33	8	249	1,159
Total food	1.96	17.2	80	69	258	1,967
Dietary study No. 11a.						
ANIMAL FOOD.						
Meats: Liver, 2 pounds, 8 cents (18)	.08	2.7	76	27	15	589
Pork: Sausage, 0.75 pound, 11 cents (65); salt pork, 0.5 pound, 7 cents (64)	.18	6.0	16	115	12	1,136
Butter, 0.25 pound, 5 cents (106)	.05	1.7	....	16	....	142
Milk, 2.4 pounds, 8 cents (154)	.08	2.6	10	13	16	225
Total animal food	.39	13.0	96	171	43	2,078
VEGETABLE FOOD.						
Cereals: Bread, 3.38 pounds, 15 cents (147)	.15	5.0	47	7	271	[illegible]
Sugar, 0.5 pound, 2 cents (163)	.02	.7	....	....	76	304
Vegetables: Beans, 1 pound, 5 cents (177); onions, 1.0 pounds, 5 cents (189); potatoes, 1.75 pounds, 3 cents (196)	.13	4.3	43	4	162	856
Beer, 2 pounds, 10 cents (259)	.10	3.3	1	....	35	171
Total vegetable food	.40	13.3	91	11	544	[illegible]
Total food	.79	26.3	187	182	587	[illegible]

DIETARY STUDIES OF ITALIAN FAMILIES (Nos. 12a–13a).

The details of two dietary studies of Italian families follow.

DIETARY STUDY NO. 12A.

There were four members of the family in this study—a man, a woman, a boy 3 years old, and a nursing baby, but the latter was not included in the study. They rented a house of six rooms for $16 a month, but sublet four of the rooms for $13. Their weekly income was $7.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 3 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	46

Equivalent to one man fifteen days.

DIETARY STUDY NO. 13A.

This study was made with a family of two women—the mother, aged 60, and her daughter. They owned their own house, consisting

of three rooms and a cellar, which would rent for about $9 a month. In addition to the foods purchased they spent during the study 35 cents for coffee and 4 cents for herbs.

The study continued seven days. The number of meals taken was 42, *equivalent to 34 meals of a man, or equivalent to one man eleven days.*

TABLE 9.—*Weights and cost of food and nutrients in dietary studies of Italian families in Philadelphia.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 155.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Shoulder, 3.5 pounds, 25 cents (19); bologna, 0.5 pound, 6 cents (1). Mutton: shoulder, 2.5 pounds, 10 cents (51)	0.41	2.7	22	33	....	382
Pork: Chops, 2 pounds, 28 cents (58); lard, 2 pounds, 24 cents (62)	.52	3.5	8	76	....	708
Fish: Sardines, 0.3 pound, 5 cents (99)	.05	.3	2	1	....	17
Eggs, 0.5 pound, 10 cents (105)	.10	.7	2	2	....	26
Milk, 5.23 pounds, 20 cents (114)	.20	1.3	5	6	8	105
Cheese, 0.5 pound, 15 cents (108)	.15	1.0	4	5	....	61
Total animal food	1.43	9.5	43	123	8	1,299
VEGETABLE FOOD.						
Cereals: Bread, 12 pounds, 50 cents (147); flour, 2 pounds, 5 cents (122); macaroni, 1.5 pounds, 15 cents (127)	.79	4.6	46	6	272	1,325
Sugar, 4 pounds, 22 cents (163)	.22	1.5	....	....	121	484
Vegetables: Cabbage, 2.75 pounds, 9 cents (184); onions, 2.75 pounds, 5 cents (189); potatoes, 3.5 pounds, 6 cents (196); tomatoes, canned, 2.31 pounds, 30 cents (209); beans, 0.95 pound, 10 cents (177)	.51	4.0	12	1	52	265
Fruit: Apples, 3.25 pounds, 6 cents (214)	.06	.4	....	....	10	40
Beer, 4 pounds, 40 cents (259)	.40	2.7	1	....	14	60
Total vegetable food	1.98	13.2	59	7	469	2,174
Total food	3.41	22.7	102	130	477	3,473
Dietary study No. 156.						
ANIMAL FOOD.						
Beef: Shoulder, 2.5 pounds, 25 cents (19); tripe, 5 pounds, 30 cents (72)	.55	5.0	41	11	....	262
Pork: Sausage, 1 pound, 16 cents (66)	.16	1.4	5	18	....	180
Fish: Whitefish, 3 pounds, 25 cents (103); oysters, 1 pound, 25 cents (93)	.50	4.5	16	4	1	104
Eggs, 3 pounds, 56 cents (105)	.56	5.1	16	12	....	171
Butter, 1 pound, 37 cents (106)	.37	3.4	....	35	....	312
Cheese, 0.7 pound, 25 cents (111)	.25	2.3	8	10	1	125
Milk, 3.66 pounds, 14 cents (114)	.14	1.3	5	6	8	105
Total animal food	2.53	23.0	91	96	10	1,259
VEGETABLE FOOD.						
Cereals: Bread, 5 pounds, 25 cents (147); cake and pastry, 0.47 pound, 15 cents (150); macaroni, 2 pounds, 15 cents (127)	.55	4.5	31	5	184	905
Vegetables: Onions, 0.8 pound, 2 cents (189); potatoes, 3.5 pounds, 12 cents (196); canned tomatoes, 1.75 pounds, 12 cents (209)	.26	2.4	4	1	27	133
Fruits: Apples, 5.75 pounds, 30 cents (214); oranges, 5 cents (238)	.35	3.2	1	1	26	117
Beer, 2.5 pounds, 25 cents (259)	.25	2.3	....	....	12	48
Total vegetable food	1.41	12.4	36	7	249	1,203
Total food	3.94	35.4	127	103	259	2,462

DIETARY STUDIES OF JEWISH FAMILIES (Nos. 14a–18a).

The details of five studies with Jewish families follow. Studies Nos. 14a, 17a, and 18a were with German Jews, No. 15a with Russian Jews, and No. 16a with Roumanian Jews.

DIETARY STUDY NO. 14A.

The members of this family consisted of three men, three women, and one girl 13 years old. They were all in good health. They lived in four rooms, for which they paid $1.75 per week. The income of the family during the time of the study was given as $6.50, which was $1.69 less than the amount spent for food.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Three men	63
Three women (63 meals × 0.8 meal of man), equivalent to	50
Girl, 13 years (21 meals × 0.7 meal of man), equivalent to	15
Total number of meals equivalent to	128

Equivalent to one man forty-three days.

DIETARY STUDY NO. 15A.

This family consisted of three men, one woman, and four children, aged, respectively, 10, 6, 3, and 1½ years. They paid $25 a month rent. In addition to the foods purchased they spent 60 cents for coffee, 14 cents for tea, 5 cents for vinegar, and 4 cents for cinnamon during the course of the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Three men	63
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 6 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 3 years (21 meals × 0.4 meal of man), equivalent to	8
Child, 2½ years (21 meals × 0.3 meal of man), equivalent to	6
Total number of meals equivalent to	118

Equivalent to one man thirty-nine days.

DIETARY STUDY NO. 16A.

The family in this study comprised one man, one woman, and five children, aged, respectively, 10, 8, 6, 4, and 2 years. They paid $11 a month rent for four rooms. In addition to the foods purchased they spent 32 cents for tea and coffee, and 11 cents for pepper and salt during the time of the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Two children, 9 and 6 years (42 meals × 0.5 meal of man), equivalent to	21
Two children, 4 and 2 years (42 meals × 0.4 meal of man), equivalent to	17
Total number of meals equivalent to	89

Equivalent to one man thirty days.

DIETARY STUDY NO. 17A.

The members of this family consisted of a man, a woman, and a baby five months old, which was not included in the study. They paid $4 a month for the rent of two rooms. During the course of the study they spent 59 cents for coffee, tea, chicory, and soda water.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Total number of meals equivalent to	38

Equivalent to one man thirteen days.

DIETARY STUDY NO. 18A.

The members of this family consisted of a man, a woman, and four children, aged, respectively, 11, 8, 5, and 3 years. They paid $8 a month rent for four rooms, one of which was used as a tailor shop. The members of the family were healthy. During the study they spent 10 cents for coffee, 6 cents for chicory, 10 cents for soda water, and 1 cent for salt, in addition to the food materials purchased.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 11 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	11
Two children, 5 and 3 years (42 meals × 0.4 meal of man), equivalent to	17
Total number of meals equivalent to	79

Equivalent to one man twenty-six days.

TABLE 10.—*Weights and cost of food and nutrients in dietary studies of Jewish families in Philadelphia.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 1[illegible].						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Shoulder, 20 pounds, $1.98 (19); suet, 1 pound, 8 cents (35)	2.06	4.8	4	10	....	105
Chicken, 3.9 pounds, 70 cents (75)	.70	1.6	6	5	....	60
Fish, white fish, 3 pounds, 25 cents (103)	.25	.6	3	1	....	23
Eggs, 0.5 pound, 10 cents (105)	.10	.2	1	1	....	12
Butter, 1 pound, 38 cents (106)	.38	.9	....	9	....	80
Milk, 12.2 pounds, 50 cents (114)	.50	1.2	5	6	7	102
Cheese, 1.5 pounds, 12 cents (108)	.12	.3	4	5	....	61
Total animal food	4.11	9.6	23	37	7	450
VEGETABLE FOOD.						
Cereals: Rice, 5.5 pounds, 42 cents (133); flour, 7 pounds, 22 cents (122); bread, 39.4 pounds, 1.75 cents (147)	2.39	5.8	51	6	322	1,566
Sugar, 8 pounds, 41 cents (169)	.41	.9	....	....	84	336
Vegetables: Potatoes, 5.25 pounds, 17 cents (190); onions, 4.5 pounds, 15 cents (189); beans, 1.0 pounds, 10 cents (177); cabbage, 1.6 pounds, 5 cents (181); beets, 1.5 pounds, 5 cents (180)	.48	1.1	7	1	28	149
Fruits: Bananas, 10 pounds, 20 cents (218); oranges, 0.4 pound, 10 cents (238); apples, 4.5 pounds, 10 cents (214); prunes, 4 pounds, 40 cents (247)	.80	1.9	2	....	47	[illegible]
Total vegetable food	4.08	9.5	60	7	481	[illegible]
Total food	8.19	19.1	83	44	488	[illegible]
Dietary study No. 1[illegible].						
ANIMAL FOOD.						
Beef: Shoulder, 7 pounds, 70 cents (19); liver, 0.5 pound, 3 cents (8); bologna, 0.5 pound, 6 cents (1)	.79	6.1	47	25	....	411
Fish: White fish, 1.5 pounds, 10 cents (103); herring, 5 pounds, 9 cents (88); sardines, 0.3 pound, 5 cents (99)	.24	1.8	11	4	....	80
Eggs, 1.13 pounds, 23 cents (105)	.23	1.8	5	4	....	56
Butter, 0.75 pound, 34 cents (106)	.34	2.6	....	22	....	196
Milk, 7.6 pounds, 29 cents (114)	.29	2.2	9	11	12	186
Cheese, 2 pounds, 14 cents (111)	.14	1.1	18	23	2	285
Total animal food	2.03	15.6	90	89	15	1,214
VEGETABLE FOOD.						
Cereals: Hominy, 1.5 pounds, 8 cents (126); flour, 1 pound, 3 cents (122); buns, 2.25 pounds, 15 cents (119); cakes, 0.25 pound, 2 cents (157); bread, 11.75 pounds, 48 cents (147); crackers, 1 pound, 6 cents (153)	.82	6.3	54	15	343	1,722
Sugar, 4 pounds, 22 cents (168)	.22	1.7	....	....	139	566
Vegetables, dried peas, 0.9 pound, 4 cents (193)	.04	.3	8	3	20	139
Fruit: Apples, 1.25 pounds, 4 cents (214)	.04	.3	....	....	5	20
Total vegetable food	1.12	8.6	62	18	507	2,437
Total food	3.15	24.2	152	107	522	3,651
Dietary study No. 180.						
ANIMAL FOOD.						
Beef: Shoulder, 9.5 pounds, 95 cents (19); suet, 2 pounds, 16 cents (35); bologna, 0.5 pound, 6 cents (1)	1.17	4.5	31	44	....	516
Fish: Sardines, 0.6 pound, 12 cents (99)	.12	.5	2	1	....	17
Butter, 0.5 pound, 20 cents (106)	.20	.8	....	8	....	71
Milk, 10.5 pounds, 40 cents (114)	.40	1.5	6	7	9	122
Cheese: Neufchatel, 1 pound, 16 cents (112)	.16	.6	3	5	....	57
Total animal food	2.05	7.9	42	65	9	783

TABLE 10.—*Weights and cost of food and nutrients in dietary studies of Jewish families in Philadelphia*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 18a—Continued.						
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Bread, 26.5 pounds, $1.17 (147); crackers, 1 pound, 8 cents (153); cake, 0.5 pound, 5 cents (150); ginger cakes, 0.5 pound, 4 cents (157); hominy, 3 pounds, 9 cents (126); rice, 0.25 pound, 2 cents (133); flour, 4 pounds, 12 cents (122)	1.59	6.1	58	10	367	1,789
Sugar, 9 pounds, 51 cents (163)	.51	2.0	....	....	157	628
Vegetables: Potatoes, 1.75 pounds, 3 cents (196); onions, 1.9 pounds, 5 cents (189); beans, 2.5 pounds, 12 cents (177); dried peas, 0.5 pound, 3 cents (193)	.23	.9	13	1	39	217
Fruits, etc.: Apples, 7.9 pounds, 20 cents (214); bananas, 3 pounds, 5 cents (218); oranges, 4.6 pounds, 12 cents (238); raisins, 0.4 pound, 3 cents (248); prunes, dried, 0.3 pound, 5 cents (247); peanuts, 0.25 pound, 3 cents (254); jelly, 0.5 pound, 3 cents (235)	.51	2.0	2	2	43	198
Total vegetable food	2.84	11.0	73	13	606	2,832
Total food	4.89	18.9	115	78	615	3,615
Dietary study No. 15a.						
ANIMAL FOOD.						
Beef: Shoulder, 17 pounds, $1.75 (19); chopped meat, 4 pounds, 44 cents (25). Veal, 2 pounds, 16 cents (37)	2.35	6.6	48	23	1	401
Eggs, 0.9 pound, 30 cents (105)	.30	.8	1	1	....	12
Butter, 2 pounds, $1.08 (106)	1.08	2.8	....	30	....	267
Milk, 11.6 pounds, 56 cents (114)	.56	1.4	6	7	9	122
Cheese: Neufchatel, 0.75 pound, 15 cents (112)	.15	.4	2	2	....	27
Total animal food	4.44	11.4	57	63	10	829
VEGETABLE FOOD.						
Cereals: Bread, 17.25 pounds, 92 cents (147); barley, 1 pound, 5 cents (116)	.97	2.5	20	3	115	567
Sugar, 6 pounds, 34 cents (163)	.34	.9	....	....	70	280
Vegetables: Potatoes, 14 pounds, 32 cents (196); onions, 2.75 pounds, 12 cents (189); carrots, 3 pounds, 10 cents (182); cabbage, 2.6 pounds, 12 cents (181); beans, 0.9 pound, 5 cents (177); turnips, 3.1 pounds, 8 cents (212); canned peas, 1.9 pounds, 30 cents (192)	1.09	2.8	8	1	48	233
Fruits: Jelly, 0.5 pound, 6 cents (222); apples, 4.5 pounds, 10 cents (214); cranberries, 5 pounds, 72 cents (227)	.88	2.3	....	....	15	60
Total vegetable food	3.28	8.5	28	4	248	1,140
Total food	7.72	19.9	85	67	258	1,969
Dietary study No. 16a.						
ANIMAL FOOD.						
Beef: Shoulder, 21 pounds, $2.10 (19)	2.10	7.0	52	27	....	448
Fish: Whitefish, 3 pounds, 21 cents (103); smoked herring, 0.16 pound, 3 cents (88)	.24	.8	6	2	....	42
Eggs, 0.9 pound, 20 cents (105)	.20	.7	2	1	....	17
Butter, 0.25 pound, 10 cents (106)	.10	.3	....	3	....	27
Milk, 7.8 pounds, 20 cents (114)	.28	.9	4	5	6	85
Cheese: Neufchatel, 0.25 pound, 4 cents (112)	.04	.1	1	1	....	13
Total animal food	2.96	9.8	65	39	6	632

TABLE 10.—*Weights and cost of food and nutrients in dietary studies of Jewish families in Philadelphia*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 18a—Continued.						
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Corn meal, 1 pound, 5 cents (119); flour, 7 pounds, 21 cents (122); rice, 2 pounds, 14 cents (133); barley, 0.25 pound, 2 cents (117); bread, 39.4 pounds, $1.75 (147)	2.17	7.2	71	9	434	2,100
Sugar, 4 pounds, 22 cents (163)	.22	.7			60	240
Vegetables: Beans, 7.85 pounds, 33 cents (177); onions, 2.75 pounds, 12 cents (189); potatoes, 3.5 pounds, 8 cents (196)	.53	1.8	28	2	84	466
Fruits: Apples, 2.25 pounds, 6 cents (211); oranges, 1.1 pounds, 27 cents (238); prunes, 1 pound, 12 cents (247)	.45	1.5	1		15	64
Total vegetable food	3.37	11.2	100	11	593	2,870
Total food	6.33	21.0	165	50	599	3,502

DIETARY STUDIES OF GERMAN FAMILIES (Nos. 19a–24a).

The details of six studies with German families follow. In one study (No. 24a) the man was native German but the woman was American born.

DIETARY STUDY NO. 19A.

The family in this study lived in the outskirts of the city. There were five persons in the group in the study—two men, one woman, and two children—who were taken to board. The ages of the children were not given; it has been here assumed that they averaged 6 to 7 years. They rented five rooms, for which they paid $9 a month. During the course of the study they spent 5 cents for tea and 60 cents for coffee in addition to the purchase of food materials.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	42
Woman (21 meals × 0.8 meal of man), equivalent to	17
Two children (42 meals × 0.5 meal of man), equivalent to	21
Total number of meals equivalent to	80

Equivalent to one man twenty-seven days.

DIETARY STUDY NO. 20A.

The members of this family comprised one man, one woman, and four children aged, respectively, 8, 6, and 4 years, and 17 months. The father was a fish peddler. They were all in poor health, dispirited, and seemed to be insufficiently nourished. The woman appeared to be

shiftless and incapable of improvement. They rented two rooms, for which they paid $4 per month. Their income was variable, being $3 during the week of the study. In addition to the food materials purchased they spent 10 cents for tea, 22 cents for coffee, and 1 cent for pepper.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Two children, 8 and 6 years (42 meals × 0.5 meal of man), equivalent to	21
Child, 4 years (21 meals × 0.4 meal of man), equivalent to	8
Child, 17 months (21 meals × 0.2 meal of man), equivalent to	4
Total number of meals equivalent to	71

Equivalent to one man twenty-four days.

DIETARY STUDY NO. 21A.

This family consisted of two men, one woman, and four children aged, respectively, 11, 8, 6, and 2 years. They were all healthy. They rented a house of four rooms, for which they paid $9 a month. In addition to the food materials purchased they spent 30 cents for coffee during the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	42
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 11 years (21 meals × 0.6 meal of man), equivalent to	13
Two children, 9 and 6 years (42 meals × 0.5 meal of man), equivalent to	21
Child, 2 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	101

Equivalent to one man thirty-four days.

DIETARY STUDY NO. 22A.

This family was dirty but healthy. It consisted of a man, a woman, a boy of 16, and two children 14 and 10 years of age. The man and woman had lived in this country twenty-six years. They paid $18 a month rent for nine rooms, including a little tobacco shop at the front of the house. The woman took care of the shop during the day, as the man worked away from home. During the course of the study they spent 90 cents for tea and coffee and 4 cents for yeast cakes in addition to the food materials purchased.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Boy, 16 years old	21
Child, 14 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Total number of meals equivalent to	87

Equivalent to one man twenty-nine days.

DIETARY STUDY NO. 23A.

This family consisted of two men and two women. They owned their own house of five rooms. During the course of the study they spent 8 cents for tea and 8 cents for coffee in addition to the food materials purchased.

The study continued one day. The number of meals taken was as follows:

	Meals.
Two men	6
Two women (6 meals × 0.8 meal of man), equivalent to	5
Total number of meals equivalent to	11

Equivalent to one man four days.

DIETARY STUDY NO. 24A.

In this family the man was a German, but the woman was American born. There were also three children, aged 10, 6, and 4 years, respectively. The children were well, with bright color and good complexions, but very dirty and untidy. The income of the family was variable, from $5 to $10 per week. They paid $5 a month rent for four rooms. During the course of the study they spent 24 cents for tea and 16 cents for coffee in addition to that for the food materials purchased.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 6 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 4 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	70

Equivalent to one man twenty-three days.

TABLE 11.—*Weights and cost of food and nutrients in dietary studies of German families.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 19a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Shoulder, 9.5 pounds, 69 cents (19). Mutton, 8 pounds, 73 cents (51). Veal, 3 pounds, 25 cents (37)	1.67	6.2	53	39	....	559
Pork: Scrapple, 1.5 pounds, 11 cents (67); lard, 5 *pounds, 6 cents (62)*	.17	.6	1	13	3	132
Eggs, 1 pound, 24 cents (105)	.24	.9	2	2	....	26
Butter, 1.25 pounds, 39 cents (106)	.39	1.4	....	18	....	160
Total animal food	2.47	9.1	56	72	3	877
VEGETABLE FOOD.						
Cereals: Bread, 22 pounds, $1.06 (147); pies, 4 pounds, 20 cents (158); flour, 9 pounds, 43 cents (122)	1.69	6.3	53	13	338	1,680
Sugar, 2 pounds, 12 cents (163)	.12	.4	....	....	34	136
Vegetables: Potatoes, 21 pounds, 49 cents (196); sauerkraut, 1 pound, 10 cents (204); cabbage, 1.56 pounds, 10 cents (181)	.69	2.6	9	....	67	304
Fruit, oranges, 0.6 pound, 6 cents (238)	.06	.2	....	....	....	....
Total animal food	2.56	9.5	62	13	439	2,120
Total food	5.03	18.6	118	85	442	2,997
Dietary study No. 20.						
ANIMAL FOOD.						
Beef: Shoulder, 2.5 pounds, 24 cents (19); liver, 2 pounds, 12 cents (8)	.36	1.5	15	5	1	109
Pork: *Scrapple, 2 pound, 16 cents (67); ham, 7* pounds, 42 cents (62); lard, 1 pound, 10 cents (62)	.68	2.8	20	70	4	719
Fish, herring, smoked, 0.9 pound, 15 cents (88)	.15	.6	3	2	....	30
Butter, 0.25 pound, 9 cents (106)	.09	.4	....	4	....	36
Milk, 2.6 pounds, 14 cents (114)	.14	.6	2	2	3	38
Total animal food	1.42	5.9	40	83	8	932
VEGETABLE FOOD.						
Cereals, bread, 7.9 pounds, 38 cents (147)	.38	1.6	14	2	79	390
Sugar, 3 pounds, 18 cents (163); molasses, 1.5 pounds, 8 cents (165)	.26	1.1	1	....	76	308
Vegetables: Potatoes, 7 pounds, 14 cents (196); canned tomatoes, 2 pounds, 11 cents (209); cabbage, 6.2 pounds, 18 cents (181)	.43	1.8	5	....	32	148
Fruit, oranges, 0.3 pound, 8 cents (238)	.08	.3	....	....	....	....
Total vegetable food	1.15	4.8	20	2	187	846
Total food	2.57	10.2	60	85	195	1,778
Dietary study No. 25a.						
ANIMAL FOOD.						
Beef: Shoulder, 7 pounds, 71 cents (19); liver, 2.5 pounds, 17 cents (8)	.88	3.8	33	13	1	252
Pork, lard, 1.5 pounds, 23 cents (62)	.23	1.0	....	30	....	267
Milk, 8.4 pounds, 32 cents (114)	.32	1.4	5	7	8	114
Total animal food	1.43	6.2	38	50	9	633
VEGETABLE FOOD.						
Cereals: Bread, 24.8 pounds, 88 cents (147); buns, 2.1 pounds, 18 cents (148); flour, 24 pounds, 72 cents (122); rice, 0.5 pound, 4 cents (133)	1.82	7.9	102	14	646	3,117
Sugar, 10 pounds, 56 cents (163)	.56	2.4	....	....	197	788
Vegetables: Potatoes, 21 pounds, 45 cents (196); canned tomatoes, 1.8 pounds, 12 cents (209)	.57	2.5	9	1	78	357
Fruits, jelly, 3.5 pounds, 28 cents (235)	.28	1.2	1	....	41	168
Total vegetable food	3.23	14.0	112	15	962	4,430
Total food	4.6[illegible]	20.2	150	65	971	5,063

TABLE 11.—*Weights and cost of food and nutrients in dietary studies of German families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 21a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Suet, 3 pounds, 15 cents (35); shoulder, 8.75 pounds, 87 cents (19); shin, 2 pounds, 16 cents (17); round, 1.25 pounds, 18 cents (28)	1.36	4.3	30	48	1	551
Pork: Ham, 5 pounds, 50 cents (60); sausage, 3 pounds, 47 cents (66); steak, 1.5 pounds, 20 cents (69)	1.17	3.6	18	49	....	508
Eggs, 1.5 pounds, 22 cents (105)	.22	.7	3	2	....	30
Butter, 1 pound, 36 cents (106)	.36	1.1	....	12	....	107
Milk, skim, 16 pounds, 32 cents (115)	.32	1.0	8	1	12	89
Total animal food	3.43	10.7	59	112	13	1,285
VEGETABLE FOOD.						
Cereals: Corn meal, 12 pounds, 42 cents (119); flour, 1.5 pounds, 11 cents (122); bread, 25 pounds, 76 cents (147); cakes, 3.75 pounds, 40 cents (151)	1.69	5.3	55	16	371	1,846
Sugar, 1 pound, 6 cents (163)	.06	.2	....	....	14	56
Vegetables, potatoes, 14 pounds, 35 cents (196)	.35	1.1	4	....	37	164
Total vegetable food	2.10	6.6	59	16	422	2,066
Total food	5.53	17.3	118	128	435	3,351
Dietary study No. 22a.						
ANIMAL FOOD.						
Beef: Shoulder, 7 pounds, 66 cents (19); round, 5 pounds, 98 cents (28)	1.64	6.1	36	18	....	304
Pork: Sausage, 3.25 pounds, 45 cents (66); pork chops, 2 pounds, 28 cents (58); lard, 2 pounds, 31 cents (62)	1.04	3.8	12	66	1	639
Fish: Whitefish, 8 pounds, 56 cents (102)	.56	2.1	14	4	....	92
Eggs, 1.75 pounds, 51 cents (105)	.51	1.9	4	3	....	43
Butter, 2.25 pounds, 90 cents (106)	.90	3.3	....	32	....	285
Total animal food	4.65	17.2	66	123	1	1,363
VEGETABLE FOOD.						
Cereals: Bread, 18 pounds, 79 cents (147); buckwheat, 2 pounds, 10 cents (118); flour, 20 pounds, 81 cents (122); ginger cakes, 1.5 pounds, 12 cents (157)	1.82	6.7	70	10	458	2,201
Sugars, etc.: Sugar, 7 pounds, 42 cents (163); molasses, 1.5 pounds, 8 cents (165)	.50	1.9	....	....	135	540
Vegetables: Potatoes, 21.5 pounds, 49 cents (196); onions, 1.6 pounds, 2 cents (189); cabbage, 1.4 pounds, 4 cents (184); canned tomatoes, 1.8 pounds, 10 cents (209); turnips, 3.75 pounds, 7 cents (212)	.72	2.7	11	1	84	389
Total vegetable food	3.04	11.3	81	11	677	3,130
Total food	7.69	28.5	147	134	678	4,493
Dietary study No. 23a (duration, 4 days).						
ANIMAL FOOD.						
Beef: Shoulder, 1.5 pounds, 15 cents (19); bologna, 1 pound, 13 cents (1)	.28	7.0	49	37	....	525
Fish: Smoked herring, 0.9 pound, 10 cents (88)	.10	2.5	21	9	....	164
Eggs, 0.25 pound, 5 cents (105)	.05	1.3	4	3	....	43
Butter, 0.25 pound, 10 cents (106)	.10	2.5	....	24	....	214
Milk, 4.2 pounds, 16 cents (114)	.16	4.0	16	19	24	329
Total animal food	.69	17.3	90	92	24	1,275

TABLE 11.—*Weights and cost of food and nutrients in dietary studies of German families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbo-hydrates.	Fuel value.
Dietary study No. 23a (duration 1 day)—Cont'd.						
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Flour, 0.9 pound, 3 cents (122); white bread, 2.25 pounds, 10 cents (147); rye bread, 2.25 pounds, 10 cents (146); buns, 0.7 pound, 5 cents (149)	0.28	7.0	65	11	392	1,926
Sugar, 1 pound, 5 cents (163)	.05	1.3			114	456
Vegetables: Potatoes, 3.5 pounds, 9 cents (196); dried beans, 1 pound, 4 cents (177)	.13	3.2	34	3	139	719
Total vegetable food	.46	11.5	99	14	645	3,101
Total food	1.15	28.8	189	106	669	4,376

DIETARY STUDY OF AN AMERICAN FAMILY (No. 25a).

This family comprised two healthy women of frugal habits. They occupied three rooms, for which they paid $6 a month. During the period of the study they spent 15 cents for tea in addition to the purchase of food.

The study continued seven days. The number of meals taken was 42, equivalent to 34 meals of a man, or equivalent to 1 man 11 days.

TABLE 12.—*Weights and cost of food and nutrients in a dietary study of an American family.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbo-hydrates.	Fuel value.
Dietary study No. 25a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Shoulder, 1.5 pounds, 24 cents (19). Veal, 1 pound, 20 cents (37); liver, 1 pound, 6 cents (8)	0.50	4.5	25	8	1	175
Pork, scrapple, 1 pound, 6 cents (67)	.06	.5	1	8	5	95
Fish, mackerel, 1.75 pounds, 22 cents (91)	.22	2.0	7	3		55
Butter, 1 pound, 40 cents (106)	.40	3.6	1	35		316
Cheese, cottage, 0.5 pound, 5 cents (110)	.05	.5	4		1	20
Milk, 1.06 pounds, 4 cents (114)	.04	.4	2	2	2	34
Total animal food	1.27	11.5	40	56	9	695
VEGETABLE FOOD.						
Cereals: Bread, 7 pounds, 35 cents (147); doughnuts, 1 pound, 10 cents (156); corn meal, 2 pounds, 5 cents (119)	.50	4.5	37	14	237	1,221
Sugar, 3 pounds, 14 cents (163); molasses, 1.5 pounds, 8 cents (165)	.22	2.0	2		167	676
Vegetables: Cabbage, 2.76 pounds, 10 cents (181); cabbage, pickled, 1.5 pounds, 10 cents (181)	.20	1.8	2		8	40
Fruits: Prunes, 1 pound, 15 cents (247); bananas, 2.5 pounds, 10 cents (218); oranges, 0.75 pound, 10 cents (238); strawberry preserve, 1 pound, 12 cents (251)	.57	5.2	2	1	53	229
Total vegetable food	1.49	13.5	43	15	465	2,166
Total food	2.76	25.0	83	71	474	2,861

DIETARY STUDIES OF IRISH FAMILIES (Nos. 26a–28a).

The details of three dietary studies with Irish families follow:

DIETARY STUDY NO. 26A.

This family consisted of a man, a woman, and four children; aged 9, 7, and 2½ years, and 9 months, respectively. The woman was not strong; the children were well but pale. The income of the family was $15 per week. They paid $10 a month rent for four rooms and a bathroom. During the course of the study they spent $1.12 for tea and coffee, 8 cents for salt and pepper, and 5 cents for pickles.

The study continued 7 days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Two children, 9 and 7 years (42 meals × 0.5 meal of man), equivalent to	21
Child, 2½ years (21 meals × 0.4 meal of man), equivalent to	9
Child, 9 months (21 meals × 0.3 meal of man), equivalent to	6
Total number of meals equivalent to	74

Equivalent to one man twenty-five days.

DIETARY STUDY NO. 27A.

This was a storekeeper's family, comprising a man and a woman. They paid $12 a month rent for three rooms, not including the store, which was on another street. They spent 20 cents for tea in addition to the food materials purchased during the course of the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Total number of meals equivalent to	38

Equivalent to one man thirteen days.

DIETARY STUDY NO. 28A.

This family included a man, a woman, and five children, aged respectively 15, 12, 9, and 5 years, and 21 months. They were rather sickly. The man was a painter, out of work at the time of the study. When employed he earned $15 per week. One of the children, a boy, earned $3 per week. They paid $12 a month rent for a house of five rooms, the rent being applied to the purchase of the house. During the course of the study they spent 15 cents for tea, 30 cents for coffee, and 5 cents for yeast in addition to the food materials purchased.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 15 years (21 meals × 0.8 meal of man), equivalent to	17
Child, 12 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 9 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 5 years (21 meals × 0.4 meal of man), equivalent to	8
Child, 21 months (21 meals × 0.3 meal of man), equivalent to	6
Total number of meals equivalent to	95

Equivalent to one man thirty-two days.

TABLE 13.—*Weights and cost of food and nutrients in dietary studies of Irish families.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 26a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Round, 7 pounds, $1.20 (28); shoulder, 5 pounds, 52 cents (19). Mutton, 3 pounds, 36 cents (51). Veal, 1 pound, 20 cents (37)	2.28	9.1	50	29		458
Pork: Sausage, 1 pound, 14 cents (66); chops, 3 pounds, 51 cents (58); ham, 1 pound, 20 cents (60); lard, 1 pound, 16 cents (62)	1.01	4.1	12	45		448
Fish: Mackerel, 1 pound, 18 cents (91); white-fish, 2 pounds, 20 cents (103)	.38	1.5	6	2		42
Milk, 18.9 pounds, 72 cents (114)	.72	2.9	11	14	17	237
Cheese, Neufchatel, 1 pound, 16 cents (112)	.16	.6	3	5		57
Total animal food	4.55	18.2	82	95	17	1,242
VEGETABLE FOOD.						
Cereals: Bread, 32 pounds, $1.60 (147); buckwheat, 2 pounds, 10 cents (118); barley, 1 pound, 3 cents (117); cake, 0.5 pound, 10 cents (150); doughnuts, 1 pound, 10 cents (156)	1.93	7.7	60	13	365	1,816
Sugar, 6 pounds, 36 cents (163)	.36	1.4			109	436
Vegetables: Potatoes, 24.5 pounds, 85 cents (196); canned tomatoes, 7.1 pounds, 44 cents (209); sauerkraut, 2 pounds, 18 cents (204), cabbage, 1.4 pounds, 5 cents (181), onions, 1.6 pounds, 5 cents (189); turnips, 6.25 pounds, 14 cents (212), dried peas, 1 pound, 12 cents (193), corn, canned, 1.3 pounds, 12 cents (184)	1.95	7.8	18	2	113	542
Fruits, prunes, 1 pound, 16 cents (247)	.16	.6			12	48
Total vegetable food	4.40	17.6	78	15	599	2,842
Total food	8.95	35.8	160	110	616	4,084
Dietary study No. 27a.						
ANIMAL FOOD.						
Beef: Corned, 2 pounds, 24 cents (2); stewing, 3 pounds, 22 cents (33); chuck, 3 pounds, 36 cents (11); bologna, 1 pound, 12 cents (1). Mutton, 1.5 pounds, 12 cents (51)	1.06	8.1	57	54		709
Fish, haddock, 3 pounds, 18 cents (84)	.18	1.4	9			36
Eggs, 1.63 pounds, 33 cents (105)	.33	2.5	7	5		73
Butter, 3 pounds, 60 cents (106)	.60	4.6	1	89		796
Milk, 11.5 pounds, 44 cents (114)	.44	3.4	13	16	20	274
Total animal food	2.61	20.0	87	164	20	1,888
VEGETABLE FOOD.						
Cereals: Oatmeal, 3 pounds, 15 cents (130); barley, 0.5 pound, 3 cents (117); flour, 9 pounds, 27 cents (122)	.45	3.4	54	11	318	1,586

TABLE 13.—*Weights and cost of food and nutrients in dietary studies of Irish families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 27a—Continued.						
VEGETABLE FOOD—continued.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Sugars and starches: Sugar, 1.5 pounds, 18 cents (163); cornstarch, 1 pound, 5 cents (172)	0.23	1.8	....	....	84	336
Vegetables: Potatoes, 12.25 pounds, 35 cents (196); cabbage, 1.38 pounds, 5 cents (181); onions, 0.8 pound, 2 cents (189); carrots, 0.34 pound, 1 cent (182); turnips, 1.4 pounds, 3 cents (212); canned tomatoes, 3.5 pounds, 20 cents (209)	.66	5.1	12	1	92	425
Total vegetable food	1.34	10.3	66	12	494	2,347
Total food	3.95	30.3	153	176	514	4,235
Dietary study No. 28a.						
ANIMAL FOOD.						
Beef: Round, 4 pounds, 62 cents (28); shoulder, 2 pounds, 24 cents (49); liver, 1 pound, 8 cents (8); bologna, 2.5 pounds, 30 cents (1). Veal 2 pounds, 28 cents (37)	1.52	4.8	30	16	....	260
Pork: Rib, 1 pound, 12 cents (54); scrapple, 2 pounds, 18 cents (67); lard, 1.5 pounds, 20 cents (62)	.50	1.6	3	30	3	291
Butter, 3 pounds, $1.10 (106)	1.10	3.4	....	36	....	320
Milk, 9.4 pounds, 36 cents (114)	.36	1.1	4	5	7	89
Cheese, 1 pound, 13 cents (111)	.13	.4	4	5	....	61
Total animal food	3.61	11.3	41	92	10	1,021
VEGETABLE FOOD.						
Cereals: Barley, 0.5 pound, 3 cents (117); flour, 14 pounds, 40 cents (122); cake, 0.9 pound, 10 cents (150); buns, 3.95 pounds, 25 cents (148); bread, 9.5 pounds, 46 cents (147)	1.24	3.9	40	9	266	1,304
Sugars, etc.: Sugar, 9 pounds, 47 cents (163); sirup, 0.75 pound, 5 cents (166)	.52	1.6	....	....	135	540
Vegetables: Canned corn, 1.9 pounds, 22 cents (184); potatoes, 24.5 pounds, 77 cents (196); greens, 3.25 pounds, 11 cents (205)	1.10	3.4	9	1	70	325
Total vegetable food	2.86	8.9	49	10	471	2,169
Total food	6.47	20.2	90	102	481	3,190

SUMMARY AND GENERAL DEDUCTIONS.

The results of the dietary studies in Philadelphia are summarized in the following table:

TABLE 14.—*Summary of results of dietary studies of Philadelphia families.*

Dietary study number.	Families.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
		Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
7a	Colored	9.1	65	69	210	1,715
8a	....do	26.4	80	121	332	2,726
9a	....do	26.3	123	164	482	3,880
10a	....do	17.2	80	69	258	1,967
11a	....do	26.3	187	182	587	4,716
	Average	21.1	107	121	374	3,001

TABLE 14.—*Summary of results of dietary studies of Philadelphia families*—Cont'd.

Dietary study number.	Families.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
		Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
12a	Italian	22.7	102	130	477	3,473
13a	....do	35.4	127	103	259	2,462
	Average	29.0	114	116	368	2,968
14a	German Jew	19.1	83	44	488	2,676
17a	....do	24.2	152	107	522	3,651
18a	....do	18.9	115	78	615	3,615
15a	Russian Jew	19.9	85	67	258	1,969
16a	Roumanian Jew	21.0	165	50	599	3,562
	Average	20.6	120	69	496	3,086
19a	German	18.6	118	85	442	2,997
20a	....do	10.2	60	85	195	1,778
21a	....do	17.3	118	128	435	3,351
22a	....do	28.5	147	134	678	4,493
23a	....do	28.8	189	106	669	4,376
24a	German-American	20.2	150	65	971	5,063
	Average	20.6	130	101	565	3,676
25a	American	25.0	83	71	474	2,861
26a	Irish	35.8	160	110	616	4,084
27a	....do	30.3	153	176	514	4,235
28a	....do	20.2	90	102	481	3,190
	Average	28.8	135	129	537	3,836
	Average of all 22 studies	22.8	115	102	476	3,308

In several of the studies the cost of the diet per man per day was relatively very high, and in nearly all of them it was higher than was necessary. The average given in the table above, while indicating what these families spent for their food, represents a greater amount than it was necessary to spend in those regions, in the time when these studies were made, to provide a diet in every way as satisfactory as the average obtained in the studies. Thus, 14 of the 22 families included in these studies paid from 20 to 36 cents per man per day for food materials (not including food accessories) which supplied no more nutrients or energy than it was estimated could have been obtained for 15 cents if there had been more intelligence in marketing; and those families who spent less than 20 cents per man per day for food obtained less than they should for the money spent. This is quite apparent upon a study of the results summarized above. For instance, among the 5 colored families 3 of them spent practically the same amount for their food, namely 26.3 cents per man per day in two cases and 26.4 cents in the third. But the quantities of nutrients and energy obtained varied widely. Thus, in study No. 8a the family obtained per man per day but 80 grams of protein and 2,786 calories of energy; the family in study No. 9a spent 0.1 cent per day less, but got 43 grams of protein and 1,154 calories of energy more, while the family in study No. 11a for the same expenditure secured 187 grams of protein and over 4,700 calories of energy. The family in study No. 10a spent 17.2

cents per man per day, and obtained just as much protein as the family in dietary study No. 8a for 26.4 cents, but only about two-thirds as much energy; this deficiency being due to the fact that they expended a smaller proportion of their money upon pork and vegetable foods and thus secured less fat and carbohydrates. The family in dietary study No. 7a were certainly underfed; they spent but 9.1 cents per man per day for food, and obtained for it but 65 grams of protein and a little over 1,700 calories of energy. Their purchases, however, were just about as economical as those in dietary study No. 11a.

The results with the two Italian families studied differed considerably. The family in study No. 12a spent 22.7 cents per man per day, and obtained 102 grams of protein, and nearly 3,500 calories of energy, while the family in study No. 13a spent 35.4 cents and got a little more protein—127 grams—but only about two-thirds as much energy as in No. 12a. These were among the least economical of the families included in these studies.

The group in which there was the most uniformity as regards the quantity of nutrients and energy of the diet, and also with respect to *economy of purchase, was that made up of German families. In the* average of the 6 families of this group the diet cost 20.6 cents per man per day, and furnished 130 grams of protein and very nearly 3,700 calories of energy. One family in this study was considerably underfed, spending only 10.2 cents per man per day for their food. This was practically just half of the amount spent by the average; but for this expenditure they secured very nearly half of the protein and energy found in the average diet for the group.

Of all the families studied in Philadelphia, the woman in dietary study No. 24a of this group was believed by the investigator to show the most intelligence on the subject of marketing. She had tried all the markets in the vicinity of her home until she had found the most reasonable one, which she then patronized regularly. For 20.2 cents per man per day she secured 150 grams of protein and 5,063 calories of energy, while the family in study No. 22a, to obtain almost as much protein, but somewhat less energy, expended 28.5 cents.

In the average of the results with the five Jewish families the cost of the diet was the same as that for the German families, but the average diet of the Jewish families provided on the average only 120 grams of protein and 3,086 calories of energy. Two of the families, those in the studies Nos. 14a and 15a, were decidedly less economical than the rest of the group, and although they spent a sufficient amount of money they were hardly sufficiently fed when compared with other families and with the average of all of them.

The cost of the diet in the average for the three Irish families was very nearly the same as that for the Italian families, but the quanti-

ties of nutrients and energy procured were noticeably larger for the former.

The only native American family included in these studies was that in study No. 25a. They spent 25 cents per man per day, for which they secured 83 grams of protein and 2,861 calories of energy—a diet exactly the same in protein and but very little higher in energy than that in study No. 14a (a German-Jewish family), which cost 6 cents per day less.

Most of the above comparisons of different diets as regards economy have been made between families of the same nationality. Similar facts are observed in comparing the results with families of different nationalities. Thus in dietary study No. 24a with the German-American family the cost of the diet was 20.2 cents per man per day, for which 150 grams of protein and 5,063 calories of energy were secured, while in dietary study No. 28a, with an Irish family, the cost per man per day was exactly the same, but only 90 grams of protein and 3,190 calories of energy were secured. The family of Roumanian Jews in dietary study No. 16a spent 21 cents per man per day, a trifle more than the two families just mentioned, and secured 165 grams of protein and 3,502 calories of energy; that is, little more protein but much less energy than in the family in study No. 24a. Again, the colored family in dietary study No. 10a spent 17.2 cents per man per day and secured but 80 grams of protein and 1,967 calories of energy, while the German family in study No. 21a spent 17.3 cents per man per day and secured 118 grams of protein and 3,351 calories of energy. The two most expensive dietaries in the whole number were that of the Italian family in the study No. 13a and that of the Irish family in study No. 26a. The former spent 35.4 cents per man per day and secured 127 grams of protein and 2,462 calories of energy, while the latter spent 35.8 cents per man per day and secured 160 grams of protein and 4,084 calories of energy.

It is interesting to observe that the family in study No. 13a consisted of two women; so also did those in Nos. 25a and 11a. In all three the cost calculated to the basis per man per day was high, but the economy of the diets purchased varied widely.

So few data regarding the occupations of the different families are available that but little can be said concerning the fitness of the diets. Most of the families were without regular incomes, so it may be inferred that they were not engaged in steady work. The average of the 22 studies summarized above agrees practically with the common standard for a man at light to moderate muscular work; the number of studies in which the diet was fairly near the average, however, was small, the larger part of them being either considera' ly higher or lower than this. The family in study No. 27a was that of a storekeeper. The diet in this study, furnishing 153 grams of protein and

4,235 calories of energy, would certainly seem to be ample. The family in study No. 22a also kept a store, but it was looked after by the woman during the day, while the man was away at work. In this case also the diet with 147 grams of protein and 4,493 calories of energy would seem to be more than sufficient, unless the man was engaged in hard work. In the notes concerning the family in study No. 18a it was stated that one room of the house was used as a tailor shop. If tailoring was the occupation in this case, the diet, which furnished 115 grams of protein and 3,615 calories of energy, was certainly sufficient. One of the two women who comprised the family in study No. 11a was a washerwoman. If steadily employed she would doubtless require considerably more food than the average woman; but it would hardly be expected that the diet for the two women would need to average 187 grams of protein and 4,716 calories of energy per man per day as found in this study.

Two faults, then, are quite generally evident in these studies. There was a tendency to buy too much where there was sufficient money, and the prices paid for nourishment were considerably higher than was necessary.

One reason for the expensiveness of the diet was found in the way the families lived. Since they had no regular incomes they could not purchase their food materials in quantities, but bought their provisions only on the day they were used and only as much as was needed at the time. Such method of purchasing materials in small quantities is always more expensive than buying in larger amounts.

Furthermore, almost every one of the families in the Philadelphia studies bought groceries and provisions at the small corner stores so common in that city, rather than at the larger markets where the goods could be obtained much cheaper. For instance, the small corner grocery in the vicinity of the settlement charged 5 cents a pound for flour, while the best flour could be had at a larger store a little farther away for 3½ cents, even in small quantities. The only butter for sale at the small store cost 40 cents a pound, while good butter could be purchased at a market two blocks away for 28 or 30 cents. At the same market cuts of meat like neck and shin could be obtained for 3½ and 4 cents a pound which at the smaller store cost 6 cents. Milk in small quantities cost not less than 8 cents a quart.

Not only were the food materials sold at the small store generally higher in price than could be obtained elsewhere, but the majority of them in the poorer quarters of the city were of inferior quality.

One article which had considerable effect upon the cost of the dietaries, because it was used so generally and in such large quantities, was bread. Bakers' bread was used by about half of the families. The so-called pound loaf sold by the bakers weighed usually more than that—on an average about 1¼ pounds. The loaves were about a third

larger than the ordinary pound loaf of homemade bread, but they were excessively raised and dried quickly, and altogether were far from the ideal nutty, firm, nutritious loaf.

In regard to green vegetables the conditions were more favorable. The poorer streets of the city were usually well provided with these in their season and at prices about as reasonable as in the large markets. Many hucksters and farmers brought their vegetables directly to the streets in which these families lived and sold them without the middleman's profit.

To some extent the people in these regions were not responsible for the costliness of their diet. In no case were there any conveniences for the use of ice for keeping food, and in few if any cases was there sufficient money to enable them to buy in very large quantities. But while the costliness of the diet may be accounted for to some extent by lack of space to keep quantities of provisions and lack of money to buy them, a considerable part of it was unnecessary, as was shown by a comparison of the different diets as regards economy, and for people in the circumstances of those of the families studied it was unwarrantable. A little more intelligence in the matter of marketing would have enabled many of the families to provide practically the very same diet at a much smaller cost, or a better diet for the sum expended. This fact has been well illustrated by a comparison of the diet obtained by the woman in study No. 24a with that secured by other families for the same money or more. This woman had found that in the small *store near her home food materials cost her very much more than in the* market a few blocks farther away. She could get good sugar at 4 cents at the market, or larger store, which would cost her 6 cents at the small store. Meat for which she would have to pay 10 cents at the small store she could get for 6 cents at the market. Accordingly she traded at the market as much as possible.

A little knowledge of the comparative nutritive values of food materials would have enabled a number of the families in these studies to have saved a considerable part of the money spent for food by using different kinds of food materials from those purchased. Some of the families used the higher priced cuts of meat while others obtained more nourishment for the same or less money spent for cheaper cuts. Two of the families used cornmeal and two used rye bread during the weeks when the studies were made. None of the rest used any other meal or flour than the higher priced white flour, although the cheaper grades of flour are by many regarded as equally nutritious and palatable. Dried beans occurred in nine of the dietaries and dried peas in five, but only in small quantities and not as a staple article of food, notwithstanding that these are among the cheapest and most nutritious of foods commonly available. In the more general use of dried peas, beans, cornmeal and the cheaper cuts of meat, these dietaries could

have been not only cheapened as to cost, but where there was little to spend, greatly increased in nutritive value.

DETAILS OF THE STUDIES IN CHICAGO.

The dietary studies in Chicago were made in the spring in the vicinity of Hull House among families in the region in which the work of the settlement was carried on.

No difficulty was experienced in securing from the families selected permission to make the studies, as the work of the Hull House was well known to them and appreciated. As was the case in Philadelphia, the families were believed to be typical of those living in the thickly congested regions of our large cities. The families studied in Chicago were superior as regards intelligence, etc., to those studied in Philadelphia. As regards nationality, they comprised native Americans, Americans of German and Irish descent, Scotch, English, Irish and German, American-Irish, English-American, English-Irish, German-American, French-Canadian, Hungarian, and Bohemian. Most of these families were in much better circumstances than those studied in Philadelphia, a large portion of them having good incomes. In nearly all of them the women were members of the Hull House woman's club. The kind help and interest of this association in the investigations rendered success in the undertaking easier.

The attempt was made to secure as accurate data as possible regarding the kinds and cost of food consumed, but in these studies more reliance had to be placed on the housekeepers than was the case in the studies in Philadelphia, since with the number undertaken it was impossible to devote the time to the work which would have been required for personal supervision of every detail. The data of the studies, however, are believed to be quite trustworthy. Altogether 33 studies were made in Chicago, of which the results of 32 are given in the present bulletin. The results of 3 of the studies included, however, namely, Nos. 33a, 51a, and 59a are somewhat doubtful. All the others are believed to be more satisfactory. The details of the studies follow.

DIETARY STUDIES OF AMERICAN FAMILIES (Nos. 29a–35a).

Three studies were made with American families. Of these, 7 (Nos. 29a–35a) were with native Americans, 5 (Nos. 36a–40a) were with Americans of German descent, and 1 (No. 41a) with Americans of Irish descent.

DIETARY STUDY NO. 29A.

The family in this study consisted of two men and two women. The income of the family was $150 a month. They paid $16 a month rent

for six rooms. The health of the family was not the best. The woman had neuralgia; the daughter had had typhoid fever. The son was not hungry in the morning but was at about 11 o'clock, although he had not time to get anything to eat then. During the course of the study the family spent 5 cents for watercress, 38 cents for coffee, and 35 cents for tea, in addition to the food materials purchased.

The study continued seven days. One man took his lunch daily away from home. The number of meals taken at home was therefore as follows:

	Meals.
Two men	28
Two women (42 meals × 0.8 meal of man) equivalent to	34
Total number of meals equivalent to	62

Equivalent to one man twenty-one days.

DIETARY STUDY NO. 30A.

This family consisted of two men, two women, and two children, aged 14 and 3 years, respectively. The head of the family was a carpenter. They were all in good health. The children drank coffee for breakfast and tea for supper. The woman was very neat and intelligent and patronized the large markets. They paid $14 a month rent for seven rooms. During the study she spent 5 cents for ginger, 10 cents for catsup, 25 cents for tea, and 35 cents for coffee in addition to the food materials purchased. The fuel used during the time of the study cost about 55 cents.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	39
Two women (42 meals ×0.8 meal of man), equivalent to	34
One child, 14 years (21 meals ×0.7 meal of man), equivalent to	15
One child, 3 years (21 meals ×0.4 meal of man), equivalent to	8
Total number of meals equivalent to	96

Equivalent to one man thirty-two days.

DIETARY STUDY NO. 31A.

This family consisted of one man, two woman, and a child 8 years of age. They were all vigorous and in good health. The child was allowed coffee or tea, one cup, three times a day. The income of the family was $83 a month. They paid $25 a month rent for eight rooms. The woman did not buy her provisions at the large markets. She spent 5 cents for tea, 15 cents for coffee, and 2 cents for soup greens in addition to the food materials purchased. The fuel during the week cost about $1.75.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	10
Total number of meals equivalent to	65

Equivalent to one man twenty-two days.

DIETARY STUDY NO. 32A.

This family consisted of two rather elderly people, a man and a woman, who kept a little news and variety shop. They were both in good health. Their income was $18 to $20 a week and they paid $20 a month rent for five rooms. The fuel during the week cost them about 80 cents. In addition to the food materials purchased they spent 4 cents for watercress, 15 cents for tea, and 18 cents for coffee.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Total number of meals equivalent to	38

Equivalent to one man thirteen days.

DIETARY STUDY NO. 33A.

The family consisted of a man, a woman, and three children, aged respectively 8, 5, and 3 years. The income of the family was $16 a week. They received $5 a month for board for one member of the family. They paid $15 a month rent for four rooms. The children had fine complexions and appeared to be very well. They were fed largely on bread, milk, and potatoes, but were also allowed to drink tea and coffee. The meat used was bought largely for the benefit of the man. The figures for the study are somewhat doubtful, but they were taken just as given by the woman, who was not very intelligent.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	11
Two children, 5 and 3 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	57

Equivalent to one man nineteen days.

DIETARY STUDY NO. 34A.

The family in this study consisted of four men, two women, and two children, one 9 years old and the other 10 months old; the latter not being included in the study. The income of the family was $30

a week. Boarders paid $7 a week. The family paid $20 a month rent for six rooms and $7 for a barn. The children drank tea and coffee, except on Sunday when they drank milk and beer. They had apparently very good health. In addition to the food materials purchased 60 cents was spent for coffee and 40 cents for tea.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Four men	77
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 9 years (21 meals × 0.5 meal of man), equivalent to	11
Total number of meals equivalent to	122

Equivalent to one man forty-one days.

DIETARY STUDY NO. 35A.

This family consisted of three men, weighing respectively 154, 137, and 135 pounds; two women, weighing 143 and 109 pounds, respectively, and two children, one 13 years old weighing 75 pounds and one 7 years old weighing 38 pounds. One of the men was sick with typhoid fever and consumed only eggnogg, so he was not included in the study. The rest of the family appeared to be in fair health. The children drank coffee once a day and tea twice. The income of the family was $15 a week. They paid $10 a month rent for four rooms. In addition to food materials purchased they spent 20 cents for tea and 60 cents for coffee. Fuel cost them 50 cents per week.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	42
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 13 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 7 years (21 meals × 0.5 meal of man), equivalent to	11
Total number of meals equivalent to	102

Equivalent to one man thirty-four days.

DIETARY STUDY NO. 36A.

This family consisted of two men, two women, and one child 10 years of age. They were clean and intelligent and in good health. The child drank milk mostly. The income of the family was $25 a week. They paid $11 a month rent for four rooms. Forty-five cents was spent during the week for coffee and tea and 35 cents for fuel.

The study continued seven days. There were adult visitors present at seven meals, therefore the number of meals taken was as follows:

	Meals.
Two men	42
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Visitors	7
Total number of meals equivalent to	96

Equivalent to one man thirty-two days.

DIETARY STUDY NO. 37A.

The family in this study consisted of two men, a woman, and five children aged respectively 15, 14, 7, 5, and 3 years. Their income was $97 a month. They paid $9 a month rent for four rooms. During the week they spent 4 cents for pickles, 5 cents for horseradish, 37 cents for coffee, 12 cents for tea, 5 cents for chicory, and 50 cents for fuel.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	42
Woman (21 meals × 0.8 meal of man), equivalent to	17
Two children, 15 and 14 years (42 meals × 0.7 meal of man), equivalent to	29
Child, 7 years (21 meals × 0.5 meal of man), equivalent to	11
Two children, 5 and 3 years of age (42 meals × 04. meal of man), equivalent to	17
Total number of meals equivalent to	116

Equivalent to one man thirty-nine days.

DIETARY STUDY NO. 38A.

The family in this study consisted of three men, two women, and one child 10 years old; all in very good health. The income of the family was $50 a week. They lived in their own house of seven rooms, which would rent for about $20 a month. During the week $1.05 was spent for tea and coffee and 26 cents for pickles, salt, and catsup, besides the food materials purchased.

The study continued seven days. One of the men took his suppers away from home. The number of meals taken was therefore as follows:

	Meals.
Three men	56
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 10 years old (21 meals × 0.6 meal of man), equivalent to	13
Total number of meals equivalent to	103

Equivalent to one man thirty-four days.

DIETARY STUDY NO. 39A.

The family in this study consisted of three men, two women, and six children, aged, respectively, 13, 11, 8, 5, 3 years, and 8 months. The latter was not included in the study. The children were pale and did not appear to be very well. All but the baby drank tea, and thought they could not eat a meal without it. The income of the family was $80 a month. They owned a house of eighteen rooms, of which they used nine rooms and rented nine rooms. Their own rent would cost them about $25 a month. The amount spent for food accessories was not stated, except 4 cents for vinegar and 2 cents for yeast.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Three men	63
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 13 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 11 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	11
Two children, 5 and 3 years (42 meals × 0.4 meal of man), equivalent to	17
Total number of meals equivalent to	153

Equivalent to one man fifty-one days.

DIETARY STUDY NO. 40A.

This family consisted of a man, a woman, and five children, aged, respectively, 15, 12, 10, and $2\frac{1}{2}$ years, and 7 months. The baby was not considered in the study. The children drank tea and coffee. They appeared to be in fair health. The income of the family was $9 a week. They lived in their own house of five rooms. During the study they spent 55 cents for coffee and tea, 5 cents for salt, 9 cents for pickles, and 5 cents for mustard.

The study continued seven days. The man got his lunch away from home; hence the number of meals taken was as follows:

	Meals.
Man	14
Woman (21 meals × 0.8 meal of man), equivalent to	17
Two children, 15 and 12 years (42 meals × 0.7 meal of man), equivalent to	29
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Child, $2\frac{1}{2}$ years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	81

Equivalent to one man twenty-seven days.

DIETARY STUDY NO. 41A.

This was an American family of Irish descent, consisting of a man, a woman, and four children, aged, respectively, 13, 10, and 4 years, and 16 months. The health of the family was not good. The woman suffered from rheumatism. Among the children there had been cases of pneumonia, inflammation of the bowels, and measles during the winter preceding the study. The children drank milk, and one of them beer for her health. The income of the family was $35 a month. They paid $12 a month rent for five rooms. They spent 50 cents for tea during the course of the study.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	19
Woman (19 meals × 0.8 meal of man), equivalent to	15
Child, 13 years (19 meals × 0.7 meal of man), equivalent to	13
Child, 10 years (19 meals × 0.6 meal of man), equivalent to	11
Child, 4 years (19 meals × 0.4 meal of man), equivalent to	7
Child, 16 months (19 meals × 0.3 meal of man), equivalent to	5
Total number of meals equivalent to	70

Equivalent to one man twenty-three days.

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 299.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Sirloin steak, 5.71 pounds, 71 cents (32). Mutton chops, 3 pounds, 45 cents (46)	1.16	5.5	29	40	....	472
Pork: Spare rib, 4.5 pounds, 30 cents (58)	.30	1.4	13	24	....	266
Fish: Whitefish, 1.5 pounds, 15 cents (103)	.15	.7	3	1	....	21
Eggs, 3 pounds, 32 cents (105)	.32	1.5	8	6	....	85
Cheese, 0.56 pound, 8 cents (111)	.08	.4	3	4	....	48
Milk, 2.09 pounds, 5 cents (114)	.05	.3	2	2	2	34
Total animal food	2.06	9.8	58	77	2	926
VEGETABLE FOOD.						
Cereals: Flour, 16.33 pounds, 55 cents (122)	.55	2.6	41	8	265	1,251
Sugar, 5 pounds, 30 cents (163)	.30	1.4	....	....	108	432
Vegetables: Asparagus, 1.13 pounds, 13 cents (174); cabbage, 1.25 pounds, 7 cents (181); lettuce, 0.63 pound, 12 cents (187); *onions* (green), 0.56 pound, 25 cents (190); potatoes, 14 pounds, 25 cents (196); spinach, 3.19 pounds, 26 cents (206); tomatoes (canned), 5.34 pounds, 45 cents (209)	1.53	7.3	9	1	54	261
Fruits: Oranges, 0.80 pound, 5 cents (238); strawberries, 1.31 pounds, 26 cents (250)	.31	1.5	....	....	4	16
Total vegetable food	2.69	12.8	50	4	431	1,960
Total food	4.75	22.6	108	81	433	2,886
Dietary study No. 300.						
ANIMAL FOOD.						
Beef: Bologna, 0.5 pound, 5 cents (1); shin, 2 pounds, 10 cents (17); neck, 2 pounds, 10 cents (9); porterhouse steak, 2 pounds, 24 cents (27); round steak, 1.5 pounds, 15 cents (28); roast rib, 5 pounds, 50 cents (14). Veal cutlet, 1.5 pounds, 20 cents (44). Mutton chops, 1 pound, 13 cents (46)	1.47	4.6	36	31	....	420
Pork: Ham, 1.5 pounds, 30 cents (60); lard, 1 pound, 13 cents (62)	.43	1.3	3	21	....	199
Butter, 4 pounds, $1.28 (106)	1.28	4.0	1	48	....	431
Eggs, 4.5 pounds, 48 cents (105)	.48	1.5	8	6	....	85
Milk, 14.65 pounds, 42 cents (114)	.42	1.3	7	8	10	139
Cream, 1.35 pounds, 12 cents (113)	.12	.4	....	3	1	31
Cheese, 1 pound, 16 cents (111)	.16	.5	4	5	....	61
Total animal food	4.36	13.6	59	122	11	1,366

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 30a—Continued.						
VEGETABLE FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cereals: Apple pie, 1 pound, 10 cents (158); bread, 14 pounds, 70 cents (147); buns, 1.25 pounds, 12 cents (148); cakes (ginger), 0.5 pound, 5 cents (157); flour, 8.17 pounds, 20 cents (122)	1.17	3.7	34	7	214	1,054
Sugars: Chocolate, 0.25 pound, 7 cents (167); sirup, 1.5 pounds, 10 cents (1.66); sugar, 10 pounds, 58 cents (163)	.75	2.3	....	2	158	650
Vegetables: Asparagus, 1.69 pounds, 15 cents (174); cabbage, 2.5 pounds, 11 cents (181); corn (canned), 1.31 pounds, 12 cents (184); cucumbers, 2 pounds, 10 cènts (186); onions (dry), 1.25 pounds, 6 cents (189); onions (green), 0.19 pound, 10 cents (190); peas (green), 2.72 pounds, 15 cents (194); potatoes, 28 pounds, 55 cents (196); rhubarb, 2 pounds, 5 cents (201); tomatoes (canned), 1.78 pounds, 10 cents (209)	1.52	4.7	11	1	72	341
Fruits: Apples, 4.5 pounds, 15 cents (214); bananas, 3 pounds, 15 cents (218); raisins, 2 pounds, 10 cents (248); strawberries, 1.31 pounds, 23 cents (250)	.63	2.0	1	1	34	149
Total vegetable food	4.07	12.7	46	11	478	2,194
Total food	8.43	26.3	105	133	489	3,560

Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 31a.						
ANIMAL FOOD.						
Beef: Shoulder, 1.25 pounds, 12 cents (19); sirloin, 1.25 pounds, 15 cents (32); soup bone, 2 pounds, 5 cents (17). Veal: Loin, 1.5 pounds, 18 cents (41); rib, 3 pounds, 30 cents (43)	.80	3.6	29	15	....	250
Pork: Salt pork, 3 pounds, 36 cents (64); sausage, 1 pound, 10 cents (66); tenderloin, 1 pound, 15 cents (71)	.61	2.8	8	65	....	610
Fish: Cod (salt), 1 pound, 10 cents (80)	.10	.5	3	....	....	12
Butter, 1 pound, 33 cents (106)	.33	1.5	....	18	....	160
Butterine, 1 pound, 16 cents (107)	.16	.7	....	17	....	151
Eggs, 4.5 pounds, 48 cents (105)	.48	2.2	12	9	....	128
Milk, 15.71 pounds, 45 cents (114)	.45	2.1	11	13	16	224
Cheese, 0.75 pound, 12 cents (111)	.12	.5	4	5	1	65
Total animal food	3.05	13.9	67	142	17	1,600
VEGETABLE FOOD.						
Cereals: Cake, 1 pound, 10 cents (150); flour, 4 pounds, 16 cents (122); rolls, 1 pound, 6 cents (159)	.32	1.5	13	4	87	436
Sugar, 2 pounds, 12 cents (163)	.12	.5	....	....	41	164
Vegetables: Beans (dry), 1.96 pounds, 8 cents (177); onions (green), 0.75 pound, 20 cents (190); peas (green), 1.36 pounds, 10 cents (194); potatoes, 10.5 pounds, 27 cents (196)	.65	2.9	14	1	59	301
Fruits: Jelly (currant), 2 pounds, 10 cents (228); lemons, 0.88 pound, 5 cents (236)	.15	.7	....	....	28	112
Total vegetable food	1.24	5.6	27	5	215	1,013
Total food	4.29	19.5	94	147	232	2,613

Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 32a.						
ANIMAL FOOD.						
Beef: Sausage, 1 pound, 12 cents (16); shoulder, 2.5 pounds, 20 cents (19); sirloin, 1 pound, 14 cents (32). Mutton chops, 1.5 pounds, 12 cents (46)	.58	4.5	33	36	....	452
Fish: Salmon (canned), 1 pound, 18 cents (96)	.18	1.4	6	3	....	51
Butter, 1 pound, 35 cents (106)	.35	2.7	....	30	....	267

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 32a—Continued.						
ANIMAL FOOD—*continued.*						
	Dollars.	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Cheese, 1 pound, 15 cents (111)	0.15	1.2	10	12	1	151
Cream, 4.5 pounds, 42 cents (113)	.42	3.2	4	29	7	302
Eggs, 3.2 pounds, 24 cents (105)	.24	1.8	15	10	....	149
Total animal food	1.92	14.8	68	120	8	1,372
VEGETABLE FOOD.						
Cereals: Apple pie, 1 pound, 12 cents (158); bread, 4 pounds, 20 cents (147); buckwheat, 2 pounds, 10 cents (118); doughnuts, 0.56 pound, 6 cents (156); graham flour, 2 pounds, 10 cents (124); rice, 1 pound, 10 cents (133); whole wheat flour, 2 pounds, 9 cents (125)	.77	5.9	41	13	282	1,408
Sugar, 2.5 pounds, 13 cents (165)	.13	1.0	....	....	87	348
Vegetables: Beans (string), 0.68 pound, 8 cents (178); onions, 2 pounds, 16 cents (189); parsnips, 1.25 pounds, 5 cents (191); potatoes, 7 pounds, 13 cents (196); peas (green), 1.56 pounds, 16 cents (194)	.58	4.5	9	1	53	257
Fruits: Apples, 4.5 pounds, 18 cents (214); oranges, 1.58 pounds, 10 cents (238); strawberries, 2.6 pounds, 42 cents (250)	.70	5.4	1	1	28	125
Total vegetable food	2.18	16.8	51	15	450	2,138
Total food	4.10	31.6	119	135	458	3,510
Dietary study No. 33a.						
ANIMAL FOOD.						
Beef: Rump steak, 0.83 pound, 10 cents (30); sirloin steak, 1.5 pounds, 25 cents (32). Veal chops, 2.75 pounds, 35 cents (41)	.70	3.7	20	15	....	214
Pork: Ham, 0.80 pound, 20 cents (60); lard, 0.5 pound, 7 cents (62); salt pork, 0.62 pound, 5 cents (64)	.32	1.7	3	30	....	279
Fish: Salt cod, 0.5 pound, 5 cents (80)	.05	.3	2	....	....	8
Butter, 5 pounds, $1.25 (106)	1.25	6.5	1	101	....	903
Eggs, 3 pounds, 32 cents (105)	.32	1.7	9	7	....	98
Cream, 7.88 pounds, 35 cents (113)	.35	1.8	5	35	9	368
Milk, 21.99 pounds, 63 cents (114)	.63	3.3	17	21	26	359
Cheese, 0.33 pound, 5 cents (111)	.05	.3	2	3	....	35
Total animal food	3.67	19.3	59	212	35	2,264
VEGETABLE FOOD.						
Cereals: Buns, 5.75 pounds, 44 cents (148); crackers, 0.5 pound, 5 cents (153); flour, 16.66 pounds, 38 cents (122)	.87	4.6	55	14	386	1,889
Sugars, etc.: Chocolate, 1 pound, 20 cents (167); sugar, 9 pounds, 50 cents (162)	.70	3.7	3	12	222	1,007
Vegetables: Beans (string), 0.66 pound, 8 cents (178); peas (green), 0.68 pound, 10 cents (194); potatoes, 24.25 pounds, 63 cents (196)	.81	4.3	11	1	88	405
Fruits: Apple butter, 0.5 pound, 5 cents (215); apricots, 1 pound, 20 cents (217); pineapples, 1.96 pounds, 5 cents (243)	.30	1.5	2	....	25	108
Total vegetable food	2.68	14.1	71	27	721	3,409
Total food	6.35	33.4	130	239	756	5,673
Dietary study No. 34a.						
ANIMAL FOOD.						
Beef: Rump steak, 4 pounds, 40 cents (30); sirloin steak, 2 pounds, 28 cents (32); soup bone, 4.28 pounds, 30 cents (17). Veal: Breast, 5.43 pounds, 38 cents (35); cutlets, 2.5 pounds, 36 cents (44). Mutton: Chops, 3 pounds, 24 cents (46); breast, 5 pounds, 25 cents (45)	2.21	5.4	45	42	....	554

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 34a—Continued.						
ANIMAL FOOD—continued.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Pork: Ham, 1.5 pounds, 30 cents (60); ham (boiled), 0.6 pound, 15 cents (61); lard, 1 pound, 13 cents (62); pork, 15.25 pounds, $1.81 (58); sausage, 1.5 pounds, 15 cents (66)	2.54	6.2	28	69	....	726
Fish: Trout (lake), 4 pounds, 38 cents (89); whitefish (smoked), 2 pounds, 25 cents (104)	.63	1.5	8	5	....	77
Butterine, 5 pounds, 90 cents (107)	.90	2.2	1	46	....	413
Eggs, 3.75 pounds, 41 cents (105)	.41	1.0	5	4	....	56
Milk, 29.32 pounds, 84 cents (114)	.84	2.1	11	13	16	224
Total animal food	7.53	18.4	98	179	16	2,050
VEGETABLE FOOD.						
Cereals: Apple pie, 1 pound, 10 cents (158); bread (rye), 11 pounds, 45 cents (146); cake, 1.5 pounds, 30 cents (150); flour, 12 pounds, 42 cents (122)	1.27	3.1	27	11	180	926
Sugar, 6 pounds, 36 cents (163)	.36	.8	....	....	66	264
Vegetables: Cucumbers, 12 pounds, 30 cents (186); lettuce, 1.32 pounds, 15 cents (187); onions, 2.5 pounds, 10 cents (189); peas, 5.44 pounds, 25 cents (194); potatoes, 35 pounds, 84 cents (196); radishes, 2.63 pounds, 40 cents (200); spinach, 3.19 pounds, 10 cents (206); tomatoes (canned), 1.78 pounds, 12 cents (209)	2.26	5.5	12	1	72	345
Fruits: Apples, 9 pounds, 36 cents (214); strawberries, 1.3 pounds, 25 cents (230)	.61	1.5	....	....	12	48
Beer, 8 pounds, 40 cents (259)	.40	1.0	1	....	10	44
Total vegetable food	4.90	11.9	40	12	340	1,627
Total food	12.43	30.3	138	191	356	3,677
Dietary study No. 35a.						
ANIMAL FOOD.						
Beef: Shoulder, 3 pounds, 15 cents (19); neck, 2 pounds, 20 cents (9); rump, 5.29 pounds, 43 cents (15); calves' heart, 1.5 pounds, 5 cents (38). Mutton, neck, 3.5 pounds, 15 cents (50)	.98	2.9	30	30	....	387
Pork: Bacon, 0.63 pound, 10 cents (59); fresh loin, 3 pounds, 40 cents (58); ham (boiled), 1 pound, 20 cents (61); salt pork, 1.75 pounds, 21 cents (64); sausage, 1 pound, 12 cents (66)	1.06	3.7	11	44	....	436
Fish: Herring (fresh), 4.17 pounds, 25 cents (87); sardines, 0.28 pound, 6 cents (99); smoked halibut, 0.58 pound, 7 cents (102)	.38	1.1	9	4	....	72
Butter, 1 pound, 30 cents (106)	.30	.9	....	12	....	107
Butterine, 2 pounds, 36 cents (107)	.36	1.1	....	22	....	195
Eggs, 6.75 pounds, 75 cents (105)	.75	2.2	12	8	....	119
Milk, 15.71 pounds, 45 cents (114)	.45	1.3	7	8	10	139
Total animal food	4.28	12.6	69	128	10	1,456
VEGETABLE FOOD.						
Cereals: Bread, 7 pounds, 35 cents (147); flour, 24 pounds, 55 cents (122)	.90	2.6	45	4	290	1,376
Sugar, 6 pounds, 36 cents (163)	.36	1.1	....	....	80	320
Vegetables: Beans (string), 0.66 pound, 10 cents (178); onions (dry), 3.75 pounds, 13 cents (189); onions (green), 0.19 pound, 5 cents (190); potatoes, 28 pounds, 55 cents (196); spinach, 3.19 pounds, 10 cents (206)	.93	2.7	9	1	61	289
Total vegetable food	2.19	6.4	54	5	431	1,985
Total food	6.47	19.0	123	133	441	3,441

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 36a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Round steak, 6 pounds, 80 cents (28); sirloin steak, 4.75 pounds, 73 cents (32). Veal chuck, 4 pounds, 40 cents (37). Mutton loin, 3 pounds, 30 cents (46)	2.23	7.0	42	35	....	480
Pork: Lard, 2 pounds, 28 cents (62); tenderloin, 2 pounds, 30 cents (71)	.58	1.8	5	32	....	305
Fish: Perch, 3 pounds, 25 cents (94)	.25	.8	3	1	....	21
Butter, 3.5 pounds, 95 cents (106)	.95	3.0	1	42	....	378
Eggs, 6 pounds, 64 cents (105)	.64	2.0	11	8	....	115
Milk, 28.27 pounds, 81 cents (114)	.81	2.5	13	16	20	274
Cream, 2.25 pounds, 20 cents (113)	.20	.6	1	6	1	61
Cheese, 1.5 pounds, 24 cents (111)	.24	.8	6	7	1	90
Total animal food	5.90	18.5	82	147	22	1,724
VEGETABLE FOOD.						
Cereals: Cake, 1 pound, 30 cents (150); flour, 14 pounds, 43 cents (122)	.73	2.3	24	3	158	755
Sugar, 4 pounds, 22 cents (163)	.22	.7	....	....	57	228
Vegetables: Asparagus, 1.13 pounds, 10 cents, (174); butter beans, 1.31 pounds, 15 cents (175); cabbage, 1.23 pounds, 10 cents (181); cucumbers, 3 pounds, 15 cents (186); lettuce, 0.88 pound, 11 cents (187); onions (dry), 2.5 pounds, 6 cents (189); peas (green), 2.75 pounds, 10 cents (194); potatoes, 21 pounds, 43 cents (196); radishes, 0.65 pound, 5 cents, (200); rhubarb, 0.75 pound, 5 cents (201); spinach, 3.19 pounds, 20 cents (206); turnips, 4 pounds, 6 cents (212)	1.56	4.9	11	1	61	297
Fruits: Apples, 4.5 pounds, 15 cents (214); bananas, 3 pounds, 10 cents (218); cherries (canned), 2.25 pounds, 20 cents (221); oranges, 4.75 pounds, 20 cents (238); peaches (canned), 2.25 pounds, 23 cents (239); pineapples, 1.96 pounds, 10 cents (243); prunes, 1 pound, 15 cents (247)	1.13	3.5	2	1	42	185
Total vegetable food	3.64	11.4	37	5	318	1,465
Total food	9.54	29.9	119	152	340	3,189
Dietary study No. 37a.						
ANIMAL FOOD.						
Beef: Corned beef, 7 pounds, 50 cents (2); shank (fore), 4 pounds, 25 cents (17); round steak, 8 pounds, $1.03 (28)	1.78	4.6	36	30	....	411
Pork: Sausage, 3.5 pounds, 35 cents (66)	.35	.9	5	18	....	180
Fish: Perch, 4 pounds, 25 cents (94)	.25	.6	3	1	....	21
Butter, 3 pounds, 80 cents (106)	.80	2.1	....	30	....	267
Eggs, 6.25 pounds, 76 cents (105)	.76	1.9	10	7	....	102
Milk, 19.89 pounds, 66 cents (114)	.66	1.7	8	9	12	160
Total animal food	4.60	11.8	62	95	12	1,141
VEGETABLE FOOD.						
Cereals: Apple pies, 3 pounds, 36 cents (158); bread, 9 pounds, 45 cents (147); cake (sweet), 0.5 pound, 5 cents (150); doughnuts, 1.13 pounds, 10 cents (156); flour, 24.5 pounds, 63 cents (122)	1.59	4.1	44	11	295	1,454
Sugar, 8 pounds, 46 cents (163)	.46	1.2	....	....	93	372
Vegetables: Cabbage, 4.94 pounds, 13 cents (181); onions (green), 0.94 pound, 15 cents (190); potatoes, 14 pounds, 23 cents (196); tomatoes, (canned), 1.78 pounds, 10 cents (209)	.61	1.5	4	....	28	128
Total vegetable food	2.66	6.8	48	11	416	1,954
Total food	7.26	18.6	110	106	428	3,095

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 389a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Porterhouse steak, 2.93 pounds, 41 cents (27); sirloin steak, 4.86 pounds, 68 cents (32); shoulder, 6 pounds, 60 cents (19)	1.69	5.0	31	24	....	338
Pork: Ham, 1.25 pounds, 20 cents (60)	.20	.5	2	5	....	53
Fish: Whitefish, 2 pounds, 15 cents (103); lobster, 1 pound, 22 cents (90)	.37	1.1	4	1	....	25
Butter, 4 pounds, $1.25 (106)	1.25	3.7	1	45	....	405
Cheese, 1 pound, 16 cents (111)	.16	.5	3	4	....	48
Milk, 6.75 pounds, 60 cents (114)	.60	1.8	3	4	5	68
Eggs, 1.5 pounds, 15 cents (105)	.15	.4	3	2	....	30
Total animal food	4.42	13.0	47	85	5	967
VEGETABLE FOOD.						
Cereals: Buns, 0.75 pound, 5 cents (148); crackers, 3 pounds, 38 cents (153); flour, 24.5 pounds, 60 cents (122)	1.03	3.0	42	7	280	1,350
Sugar, 4 pounds, 24 cents (163)	.24	.7	....	....	53	212
Vegetables: Beans, 1.96 pounds, 8 cents (177); cabbage, 1.23 pounds, 8 cents (181); cucumbers, 1 pound, 10 cents (186); lettuce, 0.43 pounds, 5 cents (187); onions (dry), 1.25 pounds, 5 cents (189); onions (green), 0.5 pound, 5 cents (190); potatoes, 35 pounds, 68 cents (196)	1.09	3.2	15	1	87	417
Fruits: Bananas, 6 pounds, 30 cents (218); oranges, 4.75 pounds, 20 cents (238); strawberries, 1.3 pounds, 26 cents (250)	.76	2.3	1	1	18	85
Total vegetable food	3.12	9.2	58	9	438	2,064
Total food	7.54	22.2	105	94	443	3,031
Dietary study No. 390a.						
ANIMAL FOOD.						
Beef: Round steak, 3.6 pounds, 31 cents (28); shoulder steak, 4 pounds, 32 cents (19); porterhouse steak, 0.75 pound, 8 cents (27); shank (fore), 1 pound, 11 cents (17); suet, 0.5 pound, 5 cents (35). Veal, 3 pounds, 24 cents (37)	1.11	2.2	19	13	....	192
Pork: Bacon, 1 pound, 20 cents (55); chops, 1 pound, 14 cents (58); sausage, 1 pound, 10 cents (66)	.44	.9	3	12	....	119
Butter, 1 pound, 25 cents (106)	.25	.5	....	7	....	62
Eggs, 12 pounds, $1.18 (105)	1.18	2.3	13	10	....	141
Butterine, 3 pounds, 51 cents (107)	.51	1.0	....	22	....	196
Milk, 37.69 pounds, $1.24 (114)	1.24	2.4	11	13	17	228
Total animal food	4.73	9.3	46	77	17	938
VEGETABLE FOOD.						
Cereals: Bread, 2 pounds, 5 cents (147); buns, 0.75 pound, 5 cents (148); corn meal, 2 pounds, 5 cents (119); flour, 42.5 pounds, $1.05 (122); ginger snaps, 1 pound, 6 cents (157); graham meal, 5 pounds, 25 cents (124); oatmeal, 4 pounds, 15 cents (131); pop corn, 0.25 pound, 3 cents (132); wheat (cracked), 2 pounds, 15 cents (140)	1.84	3.6	61	10	388	1,885
Sugar, 4 pounds, 48 cents (163)	.48	.9	....	....	36	144
Vegetables: Asparagus, 2.81 pounds, 21 cents (174); beans (string), 0.66 pound, 5 cents (178); lettuce, 0.22 pound, 5 cents (187); potatoes, 14 pounds, 26 cents (196); radishes, 0.22 pound, 2 cents (200); rhubarb, 4 pounds, 10 cents (201)	.69	1.4	3	....	20	92
Fruits: Apples, 8.33 pounds, 38 cents (214); lemons, 0.66 pound, 5 cents (236); oranges, 0.8 pound, 5 cents (238); plums, 2 pounds, 7 cents (245), raspberry jam, 1 pound, 10 cents (249)	.65	1.3	1	....	26	108
Total vegetable food	3.66	7.2	65	10	470	2,229
Total food	8.39	16.5	111	87	487	3,167

TABLE 15.—*Weights and cost of food and nutrients in dietary studies of American families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 50a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Corned beef, 7 pounds, 48 cents (2); flank, 2 pounds, 10 cents (24); shoulder steak, 4.5 pounds, 42 cents (19); rump steak, 1.5 pounds, 15 cents (30). Mutton: Shoulder, 0.5 pound, 5 cents (51). Veal: Chuck, 2 pounds, 15 cents (37)	1.35	5.0	45	49	....	616
Pork: Bacon, 2 pounds, 20 cents (55); chops, 1 pound, 14 cents (58); lard, 0.5 pound, 6 cents (62); sausage, 2 pounds, 20 cents (66)	.60	2.2	10	48	....	467
Fish, White, 2.5 pounds, 25 cents (103); white (smoked), 0.5 pound, 5 cents (104)	.30	1.1	6	2	....	42
Butterine, 3 pounds, 45 cents (107)	.45	1.7	1	42	....	378
Eggs, 2.63 pounds, 35 cents (105)	.35	1.3	6	4	....	60
Milk, 9.42 pounds, 25 cents (114)	.25	.9	5	6	8	105
Total animal food	3.30	12.2	73	151	8	1,668
VEGETABLE FOOD.						
Cereals: Bread, 13 pounds, 64 cents (147); cake, 1.5 pounds, 10 cents (150); pie, 0.5 pound, 5 cents (158)	.79	3.0	22	6	136	685
Sugar, 5 pounds, 30 cents (163)	.30	1.1	....	....	84	336
Vegetables: Beans (string), 0.53 pound, 15 cents (178); lettuce, 0.66 pound, 5 cents (187); onions (dry), 1.25 pounds, 5 cents (189); potatoes, 14 pounds, 30 cents (196); turnips, 2 pounds, 5 cents (212)	.60	2.2	5	....	39	176
Total vegetable food	1.69	6.3	27	6	259	1,197
Total food	4.99	18.5	100	157	267	2,865
Dietary study No. 51a.						
ANIMAL FOOD.						
Beef: Rump steak, 6.78 pounds, 80 cents (30)	.80	3.5	20	25	....	308
Pork: Bacon, 0.5 pound, 8 cents (55); fresh pork, 4.75 pounds, 57 cents (58); sausage, 1 pound, 10 cents (66)	.75	3.3	16	39	....	411
Butter, 3 pounds, 90 cents (106)	.90	3.9	1	50	....	449
Milk, 14.66 pounds, 42 cents (114)	.42	1.8	10	11	15	198
Eggs, 7.5 pounds, 88 cents (105)	.88	3.8	19	14	....	201
Total animal food	3.75	16.3	66	139	15	1,562
VEGETABLE FOOD.						
Cereals: Bread, 13 pounds, 65 cents (147); cake, 0.75 pound, 10 cents (150); crackers, 1 pound, 10 cents (153); flour, 19.60 pounds, 55 cents (122); oatmeal, 1 pound, 5 cents (131)	1.45	6.3	74	12	463	2,255
Sugar, 14 pounds, 84 cents (163)	.84	3.7	....	....	276	1,104
Vegetables: Asparagus, 2.38 pounds, 25 cents (174); corn (canned), 3.93 pounds, 38 cents (184); potatoes, 42 pounds, 88 cents (195); spinach, 6.38 pounds, 23 cents (206)	1.74	7.6	21	2	142	670
Fruit: Jelly (cherry), 1 pound, 10 cents (223)	.10	.4	....	....	12	48
Beer, 1 pound, 5 cents (259)	.05	.2	....	....	2	8
Total vegetable food	4.18	18.2	95	14	895	4,085
Total food	7.93	34.5	161	153	910	5,647

DIETARY STUDIES OF GERMAN FAMILIES (Nos. 42a-44a).

The following three studies were those of the dietaries of German families who had lived for longer or shorter periods in this country.

DIETARY STUDY NO. 42A.

The family in this study consisted of three men, two women, and two children, respectively 13 and 8 years old, all in good health. The income of the family was $15 a week. They paid $30 a month rent for five rooms and a store. During the study they spent 70 cents for coffee, in addition to the food materials purchased.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Three men	63
Two women (42 meals × 0.8 meal of man) equivalent to	34
Child, 13 years (21 meals × 0.7 meal of man), equivalent to	15
Child, eight years (21 meals × 0.5 meal of man), equivalent to	11
Total number of meals equivalent to	123

Equivalent to one man forty-one days.

DIETARY STUDY NO. 43A.

This family consisted of two men, a woman, and two children, aged 2 years and 6 months, respectively. The children were very clean and were in good health, but the youngest child was rather pale. They were both allowed to drink tea and coffee. The income of the family was $12.50 a week. They paid $8.50 a month rent for three rooms. During the course of the study they spent 29 cents for tea and coffee and 10 cents for catsup.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	42
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 2 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	67

Equivalent to one man twenty-two days.

DIETARY STUDY NO. 44A.

The family in this study consisted of one man, one woman, and three children, aged 13, 10, and 8 years, and weighing 90, 65, and 60 pounds, respectively. The woman and children looked well. The two older children drank a cup of coffee and a cup of tea each day. The youngest child drank milk. The income of the family was not given. They paid $45 a month rent for six rooms. Fuel cost them about $1 per week. In addition to the food materials purchased they spent 20 cents for tea, 35 cents for coffee, 30 cents for vinegar and catsup, and 5 cents for pickles.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 13 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	12
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	10
Total number of meals equivalent to	75

Equivalent to one man twenty-five days.

TABLE 16.—*Weights and cost of food and nutrients in dietary studies of German families.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbo-hydrates.	Fuel value.
Dietary study No. [illegible].						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Round steak, 7 pounds, 70 cents (28); *shoulder, 3.5 pounds, 35 cents (19); veal cutlets*, 4 pounds, 50 cents (44)	1.55	3.8	30	14		245
Pork: sausage, 1 pound, 10 cents (66)	.10	.2	1	5		49
Poultry: Fowl, 9.5 pounds, 95 cents (75); turkey, 9 pounds, 90 cents (76)	1.85	4.5	30	31		396
Fish: Sardines, 0.56 pound, 12 cents (99)	.12	.3	2	1		17
Butter, 5 pounds, $1.50 (106)	1.50	3.7	1	47		422
Eggs, 7.5 pounds, 79 cents (105)	.79	1.3	11	8		115
Cream, 7.5 pounds, 60 cents (112)	.60	1.5	2	15	4	158
Total animal food	6.51	15.9	77	121	4	1,402
VEGETABLE FOOD.						
Cereals: Bread, 16 pounds, 80 cents (147); flour, 2.25 pounds, 9 cents (122); rice, 1 pound, 5 cents (133)	.94	2.3	20	2	121	582
Sugar, 5.5 pounds, 33 cents (163)	.33	.8			61	244
Vegetables: Beans (dry), 3.32 pounds, 20 cents (177); cabbage, 2.47 pounds, 20 cents (181); onions (dry), 1 pound, 5 cents (189); potatoes, 8.75 pounds, 25 cents (196); radishes, 0.59 pound, 10 cents (200)	.80	1.9	12	1	43	229
Total vegetable food	2.07	5.0	32	3	225	1,055
Total food	8.58	20.9	109	124	229	2,457
Dietary study No. [illegible].						
ANIMAL FOOD.						
Beef: Round, 1.5 pounds, 15 cents (28); shoulder, 2 pounds, 20 cents (19). Veal, breast, 4 pounds, 30 cents (36); leg, 2 pounds, 24 cents (39)	.89	4.1	33	15		266
Pork: Lard, 2 pounds, 26 cents (62); loin, 2 pounds, 24 cents (58); salt pork, 4 pounds, 24 cents (64); sausage, 0.66 pound, 10 cents (66)	.84	3.8	9	129	2	1,192
Eggs, 1.5 pounds, 20 cents (105)	.20	.9	4	3		43
Butter, 0.5 pound, 13 cents (106)	.13	.6		9		80
Milk, 14.66 pounds, 42 cents (114)	.42	1.9	10	12	15	207
Cheese, 0.9 pound, 18 cents (111)	.18	.8	5	6		73
Total animal food	2.66	12.1	61	174	17	1,861
VEGETABLE FOOD.						
Cereals: Bread, 9 pounds, 45 cents (147); cake, 0.75 pound, 15 cents (150); crackers, 1 pound, 8 cents (153); flour, 12.25 pounds, 33 cents (122); noodles, 1 pound, 12 cents (128)	1.13	5.1	51	9	329	1,600
Sugar, 6 pounds, 33 cents (163)	.33	1.5			123	492
Vegetables: Cabbage, 3.7 pounds, 21 cents (181); onions (green), 1.25 pounds 5 cents (190)	.26	1.2	1		5	24

TABLE 16.—*Weights and cost of food and nutrients in dietary studies of German families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 43a—Continued.						
VEGETABLE FOOD—continued.						
	Dollars.	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Fruit, bananas, 3 pounds, 10 cents (218)	0.10	0.5	1	....	9	40
Beer, 1 pound, 5 cents (259)	.05	.2	....	....	2	8
Total vegetable food	1.87	8.5	53	9	468	2,164
Total food	4.53	20.6	114	183	485	4,025
Dietary study No. 44a.						
ANIMAL FOOD.						
Beef: Sirloin steak, 1.5 pounds, 20 cents (32); round steak, 1 pound, 12 cents (28); rib, 4 pounds, 50 cents (14); soup bone, 2 pounds, 10 cents (17). Mutton: Hind quarter, 5.75 pounds, 75 cents (47). Veal chuck, 2 pounds, 25 cents (37)	1.92	7.7	43	48	....	599
Pork: Chops, 2.5 pounds, 33 cents (58); lard, 1 pound, 14 cents (62)	.47	1.9	6	30	....	291
Fish: Trout (lake), 2 pounds, 25 cents (89); halibut (smoked), 2 pounds, 15 cents (86); salmon (whole), 1 pound, 20 cents (98)	.60	2.4	13	8	....	123
Butter, 2 pounds, 60 cents (106)	.60	2.4	....	31	....	276
Eggs, 4.5 pounds, 48 cents (105)	.48	1.9	11	8	....	115
Milk, 29.32 pounds, 91 cents (114)	.91	3.6	18	21	27	367
Total animal food	4.98	19.9	91	146	27	1,771
VEGETABLE FOOD.						
Cereals: Bread, 12 pounds, 62 cents (147); cake, 1 pound, 20 cents (150); flour, 12.25 pounds, 33 cents (122); oatmeal, 2 pounds, 15 cents (131)	1.30	5.2	53	9	319	1,568
Sugar and oil: Sugar, 5 pounds, 30 cents (163); sweet oil, 1 pound, 25 cents (171)	.55	2.2	....	18	91	524
Vegetables: Beans, 0.66 pound, 8 cents (177); corn, 1.31 pounds, 15 cents (185); lettuce, 0.66 pound, 15 cents (187); onions (green), 1.25 pounds, 5 cents (190); potatoes, 14 pounds, 30 cents (196); spinach, 1.6 pounds, 6 cents (206); rhubarb, 2 pounds, 12 cents (201)	.91	3.6	8	1	49	237
Fruits: Bananas, 3 pounds, 15 cents (218); pineapples, 3.81 pounds, 24 cents (243); strawberries, 0.65 pound, 13 cents (250)	.52	2.1	1	1	15	73
Total vegetable food	3.28	13.1	62	29	474	2,402
Total food	8.26	33.0	153	175	501	4,173

DIETARY STUDIES OF IRISH FAMILIES (Nos. 45a–50a).

The details of six studies with Irish families follow.

DIETARY STUDY NO. 45A.

The family in this study consisted of a man, weighing about 189 pounds, and two women, weighing about 143 pounds each. They were all in fair health. The income of the family was $125 a month. They paid $35 a month rent for seven rooms, one of which they rented. Their fuel cost them about $16 a month. During the course of the study they spent 18 cents for coffee and 15 cents for tea.

The study continued seven days. The family was away one day but there was a washerwoman present at two meals. The number of meals taken by the family may therefore be reckoned as follows:

	Meals.
Man	18
Two women (38 meals × 0.8 meal of man), equivalent to	30
Total number of meals equivalent to	48

Equivalent to one man sixteen days.

DIETARY STUDY NO. 46A.

This family consisted of three men, three women, and a child 12 years old: all in good health. The income of the family was $100 a month. They paid $13 a month rent for six rooms. During the period of the study they spent 65 cents for tea and 12 cents for yeast and pepper.

The study continued seven days. Two men took their lunches and one man his dinner away from home. Hence the number of meals taken was as follows:

	Meals.
Three men	42
Three women (63 meals × 0.8 meal of man), equivalent to	50
Child 12 years (21 meals × 0.7 meal of man), equivalent to	15
Total number of meals equivalent to	107

Equivalent to one man thirty-six days.

DIETARY STUDY NO. 47A.

This family consisted of a man, weighing about 180 pounds, and a woman, weighing about 140 pounds, and two children whose ages and weights were not given. The youngest child had been sick before the study began, but was well at the time. The older boy drank coffee and milk three times a day. The income of the family was $9 to $10 a week. They paid $5 a month rent for 2 rooms. Fuel cost them about 50 cents a week. In addition to the food materials purchased they spent 25 cents for coffee and 20 cents for tea.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child (21 meals × 0.5 meal of man), equivalent to	11
Child (21 meals × 0.3 meal of man), equivalent to	6
Total number of meals equivalent to	55

Equivalent to one man eighteen days.

DIETARY STUDY NO. 48A.

This family consisted of four men, one woman, and two children, aged 9 and 4 years, respectively. The children were in fair health.

They drank coffee in the morning and tea at night. The woman was dyspeptic and had bronchitis. The husband earned $9 a week, and $13 a week was received from boarders. They paid $11 a month rent for four rooms. In addition to the food materials purchased they spent $1.15 for tea and coffee and 3 cents for salt.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Four men	84
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 9 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 4 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	120

Equivalent to one man forty days.

DIETARY STUDY NO. 49A.

The family in this study consisted of one man, 150 pounds, and three women weighing respectfully 125, 165, and 200 pounds. They were all in fair health. The income of the family was $8 to $9 a week. They paid $6 a month rent for three rooms. Fuel cost them about 50 cents a week. During the period of the study they spent 30 cents for tea and coffee.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Three women (63 meals × 0.8 meal of man), equivalent to	50
Total number of meals equivalent to	71

Equivalent to one man twenty-four days.

DIETARY STUDY NO. 50A.

This family consisted of four men, one woman, and two children, aged 14 and 6 years, respectively; all in good health. The husband earned $9 a week, and three boarders paid, respectively, $4.50, $4.25, and $4 per week. The family paid $12 a month rent for four rooms. During the period of the study they spent 30 cents for coffee, 10 cents for horseradish, and 5 cents for mustard.

The study continued 7 days. The number of meals taken was as follows:

	Meals.
Four men	84
Woman (21 meals ×0.8 meal of man), equivalent to	17
Child, 14 years (21 meals ×0.7 meal of man), equivalent to	15
Child, 6 years (21 meals ×0.5 meal of man), equivalent to	11
Total number of meals equivalent to	127

Equivalent to one man forty-two days.

TABLE 17.—*Weights and cost of food and nutrients in dietary studies of Irish families.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 45a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Sirloin steak, 2 pounds, 25 cents (32); veal rib, 6.25 pounds, 55 cents (43); liver, 0.50 pound, 5 cents (40); mutton rib, 1.5 pounds, 20 cents (46)	1.05	6.6	44	36	....	496
Pork: Bacon, 1 pound, 16 cents (55)	.16	1.0	3	17	....	163
Fish: White, 1.5 pounds, 15 cents (103)	.15	.9	5	1	....	29
Butter, 1 pound, 31 cents (106)	.31	1.9	....	24	....	214
Eggs, 3.25 pounds, 23 cents (105)	.23	1.4	12	8	....	119
Cream, 2.25 pounds, 20 cents (113)	.20	1.3	2	12	3	127
Milk, 4.19 pounds, 12 cents (114)	.12	.8	4	5	6	85
Total animal food	2.22	13.9	70	103	9	1,233
VEGETABLE FOOD.						
Cereals: Bread, 9 pounds, 45 cents (147); cakes, 0.5 pound, 5 cents (150)	.50	3.1	24	5	144	717
Sugar, 5 pounds, 25 cents (163)	.25	1.6	....	....	142	568
Vegetables: Tomatoes, fresh, 1 pound, 8 cents (211); lettuce, 0.22 pound, 5 cents (187); potatoes, 10 pounds, 20 cents (196); rhubarb, 3 pounds, 10 cents (201)	.48	2.7	6	....	45	204
Fruits: Bananas, 3 pounds, 10 cents (218); strawberries, 0.65 pound, 10 cents (250); pineapple, 0.9 pound, 15 cents (243)	.35	2.2	1	1	16	77
Total vegetable food	1.53	9.6	31	6	347	1,566
Total food	3.75	23.5	101	109	356	2,799
Dietary study No. 46a.						
ANIMAL FOOD.						
Beef: Liver, 2 pounds, 8 cents (8); sausage (smoked), 1 pound, 10 cents (16); flank steak, 1.5 pounds, 15 cents (24); rump (corned), 7 pounds, 56 cents (3); chuck, 11 pounds, $1.10 (23). Veal chops, 2.5 pounds, 28 cents (41). Mutton chops, 2.5 pounds, 33 cents (46)	2.60	7.2	54	54	....	697
Pork: Bacon, 1.25 pounds, 20 cents (55); ham, 1.33 pounds, 24 cents (60); lard, 2 pounds, 24 cents (62)	.68	1.9	4	39	....	363
Fish: White, 3 pounds, 33 cents (103); white (smoked), 2.5 pounds, 25 cents (104)	.58	1.6	10	6	....	93
Butter, 3 pounds, 90 cents (106)	.90	2.5	....	32	....	285
Eggs, 7.5 pounds, 85 cents (105)	.85	2.4	12	9	....	128
Cheese, 1 pound, 25 cents (111)	.25	.7	3	5	....	57
Milk, 21.98 pounds, 189 cents (114)	1.89	5.3	9	11	14	190
Total animal food	7.75	21.6	92	156	14	1,813
VEGETABLE FOOD.						
Cereals: Applepie, 1 pound, 12 cents (158); Bread, 2.2 pounds, 11 cents (147); cake, 2.25 pounds, 30 cents (150); crackers, 3 pounds, 29 cents (153); flour, 24.5 pounds, 72 cents (122)	1.54	4.3	44	11	325	1,574
Sugar, 8 pounds, 43 cents (163)	.43	1.2	....	....	101	404
Vegetables: Cabbage, 2.47 pounds, 16 cents (181); corn (canned), 1.31 pounds, 14 cents (184); onions (dry), 2.5 pounds, 14 cents (189); potatoes, 28 pounds, 60 cents (196); radishes, 0.65 pound, 10 cents (200); rhubarb, 1.5 pounds, 10 cents (201); tomatoes (canned), 1.78 pounds, 12 cents (209)	1.36	3.8	8	1	61	285
Fruit: Bananas, 6 pounds, 30 cents (218)	.30	.8	1	....	11	48
Total vegetable food	3.63	10.1	53	12	498	2,311
Total food	11.38	31.7	145	168	512	4,124

TABLE 17.—*Weights and cost of food and nutrients in dietary studies of Irish families*—Continued.

Food consumed during the whole study (7 days). Kinds and amounts.	Cost.	Cost, nutrients, and fuel value of food per man per day. Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 47a.						
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Corned, 4 pounds, 30 cents (2); round steak, 2.5 pounds, 32 cents (28); sirloin, 2.5 pounds, 32 cents (32)	0.94	5.2	37	40	....	504
Pork: Bacon, 2 pounds, 26 cents (55); chops, 5 pounds, 25 cents (58); lard, 2 pounds, 24 cents (62); roast, 4.56 pounds, 54 cents (58)	1.29	7.2	38	142	....	1,416
Fish: Herring (fresh), 3 pounds, 18 cents (87)	.18	1.0	8	3	....	59
Butter, 1 pound, 24 cents (106)	.24	1.3	....	21	....	187
Eggs, 3 pounds, 32 cents (105)	.32	1.8	10	7	....	102
Milk, 12.56 pounds, 36 cents (114)	.36	2.0	10	13	16	220
Total animal food	3.33	18.5	103	226	16	2,488
VEGETABLE FOOD.						
Cereals: Apple pie, 1 pound, 10 cents (158); bread, 4 pounds, 20 cents (147); crackers, 0.5 pound, 4 cents (153); flour, 12.25 pounds, 29 cents (122); oatmeal, 2.5 pounds, 7 cents (131)	.70	3.9	57	13	347	1,732
Sugar, 4.88 pounds, 25 cents (163)	.25	1.4	....	....	123	492
Vegetables: Cabbage, 2.47 pounds, 12 cents (181); carrots, 0.25 pound, 3 cents (182); onions (green), 0.13 pound, 5 cents (190); potatoes, 14 pounds, 28 cents (196); turnips, 0.44 pound, 5 cents (212)	.53	3.0	7	....	56	252
Beer, 3.5 pounds, 18 cents (259)	.18	1.0	....	....	10	40
Total vegetable food	....	9.3	64	13	536	2,516
Total food	4.99	27.8	167	239	552	5,004
Dietary study No. 48a.						
ANIMAL FOOD.						
Beef: Corned, 12 pounds, 84 cents (2); rump steak, 15.5 pounds, $1.51 (30); shoulder, 15 pounds, $1.50 (19)	3.85	9.6	74	79	....	999
Pork: Chop, 2.5 pounds, 34 cents (58); sausage, 1 pound, 10 cents (66); sparerib, 4 pounds, 48 cents (58)	.92	2.3	11	24	....	258
Fowl, 8 pounds, $1.20 (75)	1.20	3.0	12	11	....	146
Fish: Salmon, 2 pounds, 30 cents (98); trout (lake), 4 pounds, 40 cents (89)	.70	1.7	8	4	....	68
Butter, 3 pounds, 80 cents (106)	.80	2.0	....	29	....	258
Eggs, 13.5 pounds, $1.44 (105)	1.44	3.6	20	14	....	205
Milk, 12.56 pounds, 36 cents (114)	.36	.9	5	6	7	101
Total animal food	9.27	23.1	130	167	7	2,035
VEGETABLE FOOD.						
Cereals: Apple pie, 5 pounds, 60 cents (158); bread, 24 pounds, $1.20 (147); buns, 5.75 pounds, 40 cents (148); cake, 1 pound, 10 cents (150)	2.30	5.8	32	14	214	1,109
Sugar, 9 pounds, 53 cents (163)	.53	1.3	....	....	102	408
Vegetables: Cabbage, 2.47 pounds, 12 cents (181); potatoes, 28 pounds, 60 cents (196)	.72	1.8	6	1	48	225
Beer, 7 pounds, 35 cents (259)	.35	.9	....	....	9	36
Total	3.90	9.8	38	15	373	1,778
Total food	13.17	32.9	168	182	380	3,813
Dietary study No 49a.						
ANIMAL FOOD.						
Beef: Dried, 2 pounds, 25 cents (4); round, 2.5 pounds, 25 cents (28); rump, 4 pounds, 30 cents (15). Mutton (rib), 3 pounds, 15 cents (46). Veal chuck, 4.5 pounds, 25 cents (37)	1.20	5.0	52	43	....	591
Pork: Lard, 1 pound, 12 cents (62); loin, 4 pounds, 50 cents (58)	.62	2.6	10	39	....	387
Fish: Herring (fresh), 3 pounds, 18 cents (87)	.18	.8	6	2	....	42
Butter, 1 pound, 30 cents (106)	.30	1.2	....	16	....	142

TABLE 17.—*Weights and cost of food and nutrients in dietary studies of Irish families*—Continued.

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
Dietary study No. 49a—Continued.						
ANIMAL FOOD—continued.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Eggs, 3 pounds, 32 cents (105)	0.32	1.3	7	5	....	73
Milk, 12.56 pounds, 36 cents (114)	.36	1.5	8	10	12	169
Cheese, 0.33 pound, 5 cents (111)	.05	.2	2	2	....	26
Total animal food	3.03	12.6	85	117	12	1,430
VEGETABLE FOOD.						
Cereal: Bread, 2 pounds, 10 cents (147); flour, 4.08 pounds, 10 cents (122); oatmeal, 2 pounds, 10 cents (131); apple pie, 1 pound, 10 cents (158)	.40	1.7	19	6	111	573
Sugar, 19.5 pounds, $1 (163)	1.00	4.1	....	....	369	1,476
Vegetables: Cabbage, 2.47 pounds, 13 cents (181); onions (green), 0.13 pound, 10 cents (190); potatoes, 21 pounds, 42 cents (196); turnips, 1.31 pounds, 11 cents (212)	.76	3.2	8	....	62	280
Total vegetable food	2.16	9.0	27	6	542	2,329
Total food	5.19	21.6	112	123	554	3,759
Dietary study No. 50a.						
ANIMAL FOOD.						
Beef: Corned, 7 pounds, 43 cents (2); round steak, 3 pounds, 36 cents (28); shoulder, 5 pounds, 40 cents (19)	1.19	2.8	26	26	....	335
Pork: Chops, 8 pounds, $1.05 (58); ham (boiled), 2 pounds, 40 cents (61); lard, 0.5 pound, 5 cents (62); sausage, 3 pounds, 38 cents (66)	1.88	4.5	20	47	....	498
Fish: White, 3 pounds, 18 cents (103)	.18	.4	3	1	....	21
Butterine, 1 pound, 18 cents (107)	.18	.4	....	9	....	80
Eggs, 3 pounds, 32 cents (105)	.32	.8	4	3	....	43
Milk, 12.56 pounds, 36 cents (114)	.36	.9	5	5	7	93
Cream, 0.56 pound, 5 cents (113)	.05	.1	....	1	....	9
Cheese, 0.5 pound, 8 cents (111)	.08	.1	2	2	....	26
Total animal food	4.24	10.0	60	94	7	1,105
VEGETABLE FOOD.						
Cereals: Bread, 15 pounds, 75 cents (147); cake, 4.5 pounds, 50 cents (150); pie, 1 pound, 12 cents (158); rolls, 5 pounds, 25 cents (159)	1.62	3.9	24	10	154	801
Sugar, 6 pounds, 36 cents (163)	.36	.9	....	....	65	260
Vegetables: Cabbage, 1.23 pounds, 10 cents (181); onions, 4.25 pounds, 25 cents (189); potatoes, 35 pounds, 75 cents (196); turnips, 1.75 pounds, 10 cents (212); tomatoes (canned), 1.78 pounds, 10 cents (209)	1.30	3.1	10	....	62	288
Fruit. Oranges, 2.38 pounds, 10 cents (238)	.10	.2	....	....	2	8
Total vegetable food	3.38	8.1	34	10	283	1,357
Total food	7.62	18.1	94	104	290	2,462

MISCELLANEOUS DIETARY STUDIES (Nos. 51a–60a).

The ten studies following were made with families of different nationalities.

DIETARY STUDY NO. 51A.

This study was made with an English family consisting of a man, weighing 146 pounds, and a woman, weighing 185 pounds, both in good health. The income of the family was $100 a month. They

paid $21 a month rent for six rooms and a bathroom. Fuel cost them $2.50 a week. During the period of the study they spent 45 cents for coffee and 1 cent for yeast in addition to the food materials purchased.

The study continued seven days. The woman was away from one meal and the man from two; hence the number of meals taken was as follows:

	Meals.
Man	19
Woman (20 meals × 0.8 meal of man), equivalent to	16
Total number of meals equivalent to	35

Equivalent to one man twelve days.

TABLE 18.—*Weights and cost of food and nutrients in dietary study No. 51a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Porterhouse steak, 8.65 pounds, $1.08 (27)	1.08	9.0	62	58		704
Pork: Ham (boiled), 0.5 pound, 10 cents (61)	.10	.8	4	4		52
Fowl, 4.2 pounds, 63 cents (75)	.63	5.3	22	20		206
Butter, 2 pounds, 58 cents (106)	.58	4.8	1	64		604
Eggs, 5.25 pounds, 53 cents (105)	.53	4.4	26	18		204
Cream, 0.68 pound, 6 cents (113)	.06	.5		5	1	49
Milk, 12.56 pounds, 36 cents (111)	.36	3.0	16	19	24	339
Total animal food	3.34	27.8	131	188	25	2,298
VEGETABLE FOOD.						
Cereals: Bread, 1 pound, 5 cents (147); crackers, 1.5 pounds, 20 cents (153); flour, 9.8 pounds, 24 cents (122)	.49	4.1	52	9	339	1,644
Sugar, 2 pounds, 16 cents (163)	.16	1.3			76	304
Vegetables: Asparagus, 5.63 pounds, 73 cents (174); cucumbers, 1 pound, 7 cents (186); peas (green), 1.36 pounds, 12 cents (194)	.92	7.7	6	1	13	85
Fruit: Strawberries, 0.65 pound, 11 cents (250)	.11	.9			1	4
Total vegetable food	1.68	14.0	58	10	429	2,037
Total food	5.02	41.8	189	198	454	4,335

DIETARY STUDY NO. 52A.

This family consisted of an Englishman, weighing 156 pounds, and a woman of Bohemian parentage, weighing 110 pounds. They were in tolerably good health. The woman was not very intelligent. Their income was $75 a month. They paid $11 a month rent for four rooms. The fuel cost them about 50 cents a week. During the period of the study they spent 25 cents for tea.

The study continued seven days, but the man had only one meal a day at home, so the number of meals taken was as follows:

	Meals.
Man	7
Woman (21 meals × 0.8 meal of man), equivalent to	17
Total number of meals equivalent to	24

Equivalent to one man eight days.

TABLE 19.—*Weights and cost of food and nutrients in dietary study No. 52a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Porterhouse steak, 1.5 pounds, 15 cents (27); soup bone, 2 pounds, 5 cents (17). Veal chuck, 0.5 pound, 5 cents (37). Mutton: Shoulder, 0.5 pound, 5 cents (51)	0.30	3.7	40	27	....	400
Fish: White, 1.5 pounds, 10 cents (103); sardines, 0.28 pound, 5 cents (99)	.15	1.9	13	4	....	88
Butter, 0.25 pound, 9 cents (106)	.09	1.1	....	12	....	107
Eggs, 0.75 pound, 8 cents (105)	.08	1.0	6	4	....	60
Milk, 6.28 pounds, 18 cents (114)	.18	2.3	12	14	18	245
Total animal food	.80	10.0	71	61	18	900
VEGETABLE FOOD.						
Cereals: Bread, 3 pounds, 15 cents (147); flour, 1 pound, 3 cents (122)	.18	2.3	22	3	133	647
Sugar, 1 pound, 6 cents (163)	.06	.8	....	....	57	228
Vegetables: Asparagus, 0.56 pound, 5 cents (174); cabbage, 1.23 pounds, 10 cents (181); *carrots, 1.38 pounds, 2 cents (182); lettuce, 0.41* pound, 6 cents (187); onions (green), 0.19 pound, 5 cents (190); potatoes, 7 pounds, 14 *cents (196); rhubarb, 2 pounds, 5 cents (201)*	.47	5.9	10	1	72	337
Fruit: Strawberries, 0.65 pound, 6 cents (250)	.10	1.3	....	....	3	12
Beer, 27 pounds, $1.35 (259)	1.35	16.9	8	....	176	736
Total vegetable food	2.16	27.2	40	4	441	1,960
Total food	2.96	37.2	111	65	459	2,860

DIETARY STUDY NO. 53A.

In this family the husband was English and the wife was American. The family consisted of two men, one woman, and two children aged, respectively, 6 years and 1 year. They were rather unintelligent and dirty, but in good health. The income of the family was $15 a week, not including the board of the second man. They paid $35 a month rent for four rooms and a store. For fuel they used soft coal, which cost them about 50 cents a week. During the course of the study they spent 80 cents for tea and coffee.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Two men	42
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 6 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 1 year (21 meals × 0.3 meal of man), equivalent to	6
Total number of meals equivalent to	76

Equivalent to one man twenty-five days.

TABLE 20.—*Weights and cost of food and nutrients in dietary study No. 53a.*

Food consumed during the whole study (7 days).	Cost, nutrients, and fuel value of food per man per day.					
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Soup bone, 2 pounds, 5 cents (17); sirloin steak, 2 pounds, 28 cents (32); beef (corned), 4 pounds, 28 cents (2); rib, 6 pounds, 75 cents (14). Veal chuck, 4 pounds, 32 cents (37). Mutton chops, 2 pounds, 25 cents (46)	1.93	7.7	53	62	....	764
Pork: Bacon, 2 pounds, 25 cents (55); chops, 2 pounds, 25 cents (58); sausage, 1 pound, 12 cents (66)	.62	2.5	11	39	....	391
Fish: Trout (lake), 2 pounds, 20 cents (89)	.20	.8	3	2	....	30
Butter, 2.5 pounds, 85 cents (106)	.85	3.4	....	39	....	347
Eggs, 9 pounds, 95 cents (105)	.95	3.8	21	15	....	218
Milk, 12.56 pounds, 30 cents (114)	.30	1.2	8	9	11	156
Cheese, 2 pounds, 20 cents (111)	.20	.8	9	12	1	147
Total animal food	5.05	20.2	105	178	12	2,053
VEGETABLE FOOD.						
Cereals: Bread, 8 pounds, 40 cents (147); oatmeal, 1 pound, 5 cents (131); rice, 2 pounds, 14 cents (133)	.59	2.4	19	3	118	575
Sugar, 4 pounds, 24 cents (163)	.24	1.0	....	....	73	292
Vegetables: Asparagus, 1.13 pounds, 20 cents (174); cabbage, 3.7 pounds, 16 cents (181); lettuce, 0.44 pound, 10 cents (187); onions (dry), 1 pound, 5 cents (189); onions (green), 0.13 pound, 5 cents (190); potatoes, 28 pounds, 50 cents (196); rhubarb, 2 pounds, 5 cents (201); turnips, 1 pound, 5 cents (212)	1.16	4.6	11	1	81	377
Fruits: Apples, 3.38 pounds, 10 cents (214); bananas, 9 pounds, 32 cents (218); strawberries, 2.6 pounds, 50 cents (250)	.92	3.7	2	1	33	149
Total vegetable food	2.91	11.7	32	5	305	1,393
Total food	7.96	31.9	137	183	317	3,446

DIETARY STUDY NO. 54A.

In this family the husband was of German descent, the wife was English. The whole family consisted of two men, a woman, and a child 10 years old. One of the men was not very well. The woman was attractive and intelligent. The boy was very well looking; he drank considerable milk. The income of the family was $25 a week. They lived in their own house, which would rent for about $20 a month. They spent 18 cents for coffee and 15 cents for tea during the course of the study.

The study continued seven days. One man was away from home for dinner. Hence the number of meals taken was as follows:

	Meals.
Two men	35
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Total number of meals equivalent to	65

Equivalent to one man twenty-two days.

TABLE 21.—*Weights and cost of food and nutrients in dietary study No. 54a.*

Food consumed during the whole study (7 days).	Cost, nutrients, and fuel value of food per man per day.					
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.**	*Calories.*
Beef: Round steak, 2 pounds, 20 cents (28); porterhouse steak, 3 pounds, 48 cents (27)	0.68	3.1	20	15	....	214
Pork: Bacon, 0.56 pound, 10 cents (55); ham (boiled), 1 pound, 30 cents (61); salt pork, 0.5 pound, 6 cents (64)	.46	2.1	5	20	....	198
Eggs, 1.5 pounds, 16 cents (105)	.16	.7	4	3	....	43
Butter, 2 pounds, 60 cents (106)	.60	2.7	1	35	....	316
Milk, 14.66 pounds, 42 cents (114)	.42	1.9	10	12	15	207
Cream, 2.25 pounds, 21 cents (113)	.21	1.0	1	9	2	92
Total animal food	2.53	11.5	41	94	17	1,070
VEGETABLE FOOD.						
Cereals: Flour, 9.8 pounds, 28 cents (122); oatmeal, 1 pound, 5 cents (131)	.33	1.5	27	4	166	808
Sugar, 4 pounds, 24 cents (163)	.24	1.1	....	....	82	328
Vegetables: Beans (dry), 0.98 pound, 5 cents (177); corn (canned), 1.31 pounds, 15 cents (184); onions (dry), 1.5 pounds, 10 cents (189); potatoes, 14 pounds, 28 cents (196)	.58	2.6	11	1	62	301
Fruit: Bananas, 3 pounds, 15 cents (218)	.15	.7	....	....	9	36
Total vegetable food	1.30	5.9	38	5	319	1,473
Total food	3.83	17.4	79	99	336	2,543

DIETARY STUDY NO. 55A.

This study was made with a French-Canadian family consisting of a man, two women, and five children aged 14, 12, 10, 8, and 5 years, respectively. They were all in fair health. The woman was a dressmaker. The house was not neat. The income of the family was $30 a week. They paid $15 a month rent for six rooms. The fuel cost them $1.50 a week. During the course of the study they spent 62 cents for tea and coffee, 10 cents for salt and pepper, 2 cents for lemons, 1 cent for pickles, and 2 cents for soup greens. The woman frequently made meat ragout.

The study continued seven days. The man took his dinners away from home; hence the number of meals taken was as follows:

	Meals.
Man	14
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 14 years (21 meals × 0.7 meal of man), equivalent to	15
Two children, 12 and 10 years (42 meals × 0.6 meal of man), equivalent to	25
Child, 8 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 5 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	107

Equivalent to one man thirty-six days.

TABLE 22.—*Weights and cost of food and nutrients in dietary study No. 55a.*

Food consumed during the whole study (7 days).	Cost, nutrients, and fuel value of food per man per day.					
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Sirloin steak, 16 pounds, $1.70 (32); soup bone, 3 pounds, 18 cents (17). Veal chuck, 1 pound, 13 cents (37)	2.01	5.6	40	35	....	472
Pork: Sausage, 2 pounds, 25 cents (66); loin, 8.25 pounds, $1.05 (58); shoulder, 1.5 pounds, 22 cents (68); lard, 0.5 pound, 7 cents (62)	1.59	4.4	19	50	....	521
Fish: Trout (lake), 3 pounds, 36 cents (89)	.36	1.0	4	2	....	34
Butter, 4 pounds, $1.11 (106)	1.11	3.1	1	43	....	387
Eggs, 5.62 pounds, 71 cents (105)	.71	2.0	9	7	....	98
Milk, 17.8 pounds, 52 cents (114)	.52	1.4	7	9	11	152
Total animal food	6.30	17.5	80	146	11	1,664
VEGETABLE FOOD.						
Cereals: Bread, 24.25 pounds, $1.12 (147); cornstarch, 1 pound, 10 cents (172); crackers, 2 pounds, 15 cents (153); doughnuts, 18.55 pounds, $1.65 (156); flour, 2 pounds, 8 cents (122); macaroni, 1 pound, 15 cents (127); rice, 0.5 pound, 4 cents (133)	3.29	9.1	51	55	349	2,090
Sugars: Sugar, 6 pounds, 36 cents (163); sirup, 6 pounds, 20 cents (166)	.56	1.6	....	....	128	512
Vegetables: Lettuce, 1.32 pounds, 15 cents (187); onions (dry), 1.87 pounds, 8 cents (189); potatoes, 35 pounds, 63 cents (196); tomatoes, canned, 1.78 pounds, 10 cents (209); turnips, 0.44 pound, 5 cents (212)	1.01	2.8	9	1	69	321
Total vegetable food	4.86	13.5	60	56	546	2,923
Total food	11.16	31.0	140	202	557	4,587

DIETARY STUDY NO. 56A.

The family in this study consisted of a man, a German, weighing 172 pounds, and a woman, an American, weighing 168 pounds; three children, aged, respectively, 14, 11, and 7 years, and weighing, respectively, 120, 90, and 48 pounds. The woman was intelligent and kept very careful records during the dietary study. She stated that she had received help regarding food and dietaries from talks at Hull House. She endeavored to provide a sufficient diet with good variety. The children were in good health. They drank milk and cocoa and a great deal of homemade root beer. The income of the family was $23 a week. They paid $11 a month rent for four rooms. The fuel cost them about 25 cents a week. During the course of the study they spent 35 cents for coffee, 30 cents for root-beer extract, 8 cents for yeast, 5 cents for salt, 4 cents for vinegar, and 1 cent for nutmeg.

The study continued seven days. In addition to the food consumed by the family they gave away the equivalent of one meal. The number of meals taken was therefore as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child, 14 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 11 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 7 years (21 meals × 0.5 meal of man), equivalent to	10
Food given away equivalent to	1
Total number of meals equivalent to	77

Equivalent to one man twenty-six days.

TABLE 23.—*Weights and cost of food and nutrients in dietary study No. 56a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbo-hydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Rump (corned), 3.1 pounds, 24 cents (3); flank, 1.5 pounds, 15 cents (24); soup bone, 6 pounds, 22 cents (17); suet, 1 pound, 8 cents (35). Mutton, leg, 5.5 pounds, 63 cents (48)	1.32	5.1	42	50	....	613
Pork: Salt pork, 0.5 pound, 6 cents (64)	.06	.2	....	8	....	71
Butter, 2 pounds, 62 cents (106)	.62	2.4	....	30	....	267
Eggs, 6 pounds, 64 cents (105)	.64	2.5	14	10	....	145
Milk, 29.32 pounds, 84 cents (114)	.84	3.2	17	20	26	350
Cheese, 1 pound, 18 cents (111)	.18	.7	5	6	....	73
Total animal food	3.66	14.1	78	124	26	1,519
VEGETABLE FOOD.						
Cereals: Bread, 2 pounds, 10 cents (147); corn meal, 2 pounds, 5 cents (119); Graham meal, 2 pounds, 6 cents (124); oatmeal, 2 pounds, 10 cents (131); macaroni, 1 pound, 10 cents (127); rice, 2 pounds, 20 cents (133); white flour, 1 pound, 4 cents (122); whole-wheat flour, 9 pounds, 54 cents (123)	1.19	4.6	46	8	259	1,291
Sugars: Cocoa, 0.5 pound, 10 cents (168); sugar, 4 pounds, 22 cents (163)	.32	1.2	2	3	72	323
Vegetables: Beans (dry), 0.98 pound, 5 cents (177); cabbage, 1.23 pounds, 7 cents (181); carrots, 0.26 pound, 5 cents (182); cucumbers, 2 pounds, 8 cents (186); lettuce, 0.88 pound, 10 cents (187); onions (green), 5 pounds, 18 cents (190); peas (dry), 1.88 pounds, 5 cents (193); peas (green) 1.36 pounds, 10 cents (194); potatoes, 14 pounds, 25 cents (196); rhubarb, 2 pounds, 5 cents (201); spinach, 3.19 pounds, 20 cents (206)	1.18	4.6	20	1	79	405
Fruits: Apples, 9 pounds, 35 cents (214); cocoanut (prepared), 1.5 pounds, 50 cents (224); figs, 1 pound, 10 cents (231); oranges, 4.75 pounds, 20 cents (238); prunes, 1 pound, 16 cents (247)	1.31	5.0	4	16	56	382
Total vegetable food	4.00	15.4	72	28	466	2,401
Total food	7.66	29.5	150	152	492	3,920

DIETARY STUDY NO. 57A.

This study was made with a Hungarian family consisting of three men, two women, and four children, aged, respectively, 14, 12, 10, and 2 years. The children were in fair health. They drank milk, tea, and coffee. The income of the family was not given. They paid $40 a month rent for 8 rooms. The fuel cost them about $1.50 a week. In addition to the food materials purchased they spent 67 cents for coffee, 50 cents for tea, 5 cents for soup greens, 5 cents for pickles, and 6 cents for candy.

The study continued seven days. Two of the men were away during the week. The number of meals taken was as follows:

	Meals.
Man	21
Two women (42 meals × 0.8 meal of man), equivalent to	34
Two children, 14 and 12 years (42 meals × 0.7 meal of man), equivalent to	29
Child, 10 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 2 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	105

Equivalent to one man thirty-five days.

TABLE 24.—*Weights and cost of food and nutrients in dietary study No. 57a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Shoulder, 10 pounds, $1.09 (19); flank, 5 pounds, 37 cents (24); sirloin, 2.5 pounds, 30 cents (32); round, 2 pounds, 24 cents (28); suet, 5 pounds, 40 cents (35); shin, 2 pounds, 12 cents (17)	2.52	7.2	50	86	....	965
Butter, 4.5 pounds, $1.13 (106)	1.13	3.2	1	50	....	449
Eggs, 10.5 pounds, $1.10 (105)	1.10	3.2	18	13	....	188
Milk, 37.69 pounds, 95 cents (114)	.95	2.7	16	19	24	329
Cream, 6.72 pounds, 60 cents (113)	.60	1.7	2	16	4	166
Total animal food	6.30	18.0	87	184	28	2,097
VEGETABLE FOOD.						
Cereals: Apple pie, 1 pound, 10 cents (158); *bread, 20 pounds, $1 (147); cakes, 2.70 pounds,* 26 cents (150); crackers, 2 pounds, 17 cents (153); wheat breakfast food, 0.33 pound, 2 cents (137); flour, 9.5 pounds, 33 cents (122); oatmeal, 3 pounds, 11 cents (131); rice, 1 pound, 7 cents (133)	2.06	5.9	51	14	316	1,593
Sugar, 14 pounds, 77 cents (163)	.77	2.2	....	....	181	724
Vegetables: Beans (string), 2.63 pounds, 20 cents (178); cabbage, 2.47 pounds, 12 cents (181); carrots, 3 pounds, 5 cents (182); lettuce, 0.22 pound, 5 cents (187); onions, 2 pounds, 10 cents (189); peas (green), 2.75 pounds, 10 cents (194); potatoes (new), 7 pounds, 45 cents (196); radishes, 0.44 pound, 5 cents (200)	1.22	3.5	5	1	27	137
Fruits: Apples, 24 pounds, 60 cents (214); bananas, 3 pounds, 10 cents (218); peaches (dry), 1 pound, 15 cents (240); pears (dry), 1 pound, 10 cents (242); pineapples, canned, 3.81 pounds, 10 cents (244); prunes, 1 pound, 12 cents (247)	1.17	3.3	3	2	70	310
Total vegetable food	5.22	14.9	59	17	594	2,763
Total food	*11.52*	*32.9*	*146*	*201*	*622*	*4,860*

DIETARY STUDY NO. 58A.

This was a Bohemian family consisting of three men, two women, and four children, aged, respectively, 13, 11, 9, and 5 years. The children were in good health. They all drank coffee. The father earned $12 a week and boarders paid $3.50 a week each. The family rented a house of four rooms for $10 a month. They spent 54 cents for coffee in addition to the food materials purchased.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Three men	63
Two women (42 meals × 0.8 meal of man), equivalent to	34
Child, 13 years (21 meals × 0.7 meal of man), equivalent to	15
Child, 11 years (21 meals × 0.6 meal of man), equivalent to	13
Child, 9 years (21 meals × 0.5 meal of man), equivalent to	11
Child, 5 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	144

Equivalent to one man forty-eight days.

TABLE 25.—*Weights and cost of food and nutrients in dietary study No. 58a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Shin, 10.5 pounds, 53 cents (17). Mutton, leg, 7.5 pounds, 68 cents (48). Veal chuck, 8.5 pounds, 85 cents (37)	2.06	4.3	37	19	....	317
Pork: Sausage, 2 pounds, 20 cents (66); sparerib, 12.5 pounds, $1.44 (58)	1.64	3.4	18	39	....	419
Butter, 1.5 pounds, 43 cents (106)	.43	1.0	....	12	....	107
Eggs, 8.25 pounds, 83 cents (105)	.83	1.7	10	7	....	102
Milk, 21.99 pounds, 63 cents (114)	.63	1.3	7	9	11	152
Cheese, 1 pound, 5 cents (110)	.05	.1	2	....	....	8
Total animal food	5.64	11.8	74	86	11	1,105
VEGETABLE FOOD.						
Cereals: Flour (white), 19.6 pounds, 47 cents (122); flour (rye), 12.5 pounds, 27 cents (121)	.74	1.6	30	3	232	1,035
Sugar, 14 pounds, 77 cents (163	.77	1.6	....	....	132	528
Vegetables: Beans (string), 5.25 pounds, 10 cents (178); cabbage, 2.47 pounds, 15 cents (181); carrots, 0.25 pound, 5 cents (182); lettuce, 1.25 pounds, 10 cents (181); onions, 1.25 pounds, 5 cents (189); potatoes, 3.5 pounds, 9 cents (196)	.54	1.1	2	....	11	52
Beer, 7 pounds, 35 cents (259)	.35	.7	....	....	8	32
Total vegetable food	2.40	5.0	32	3	383	1,687
Total food	8.04	16.8	106	89	394	2,792

DIETARY STUDY NO. 59A.

The family in this study consisted of a man, Irish, weighing 145 pounds, and a woman, English, weighing 109 pounds, and two children, one 6 years old, weighing 45 pounds, and one 4 years old, weighing 29 pounds. They were in fair health. The children drank tea and coffee three times a day. The income of the family was $9 a week. They paid $9 a month rent for three rooms. The fuel cost them 50 cents a week. In addition to the food materials purchased, they spent 60 cents for tea and coffee.

The study continued seven days. The number of meals taken was as follows:

	Meals.
Man	21
Woman (21 meals × 0.8 meal of man), equivalent to	17
Child (21 meals × 0.5 meal of man), equivalent to	10
Child, 4 years (21 meals × 0.4 meal of man), equivalent to	8
Total number of meals equivalent to	56

Equivalent to one man nineteen days.

TABLE 26.—*Weights and cost of food and nutrients in dietary study No. 59a.*

Food consumed during the whole study (7 days).		Cost, nutrients, and fuel value of food per man per day.				
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Rump steak, 3 pounds, 33 cents (30); round steak, 1 pound, 10 cents (28); sirloin steak, 1.28 pounds, 18 cents (32); flank steak, 1.5 pounds, 15 cents (24); shoulder, 3.5 pounds, 46 cents (19); corned beef, 7 pounds, 49 cents (2); sausage (frankfurt), 0.5 pound, 5 cents (5). Veal chops, 1 pound, 15 cents (41)	1.91	10.1	71	79	....	987
Pork: Bacon (smoked), 1 pound, 12 cents (55); chops, 1 pound, 12 cents (58); lard, 1 pound, 12 cents (62); pork (salt), 1 pound, 14 cents (64)	.50	2.6	6	65	....	602
Fish, white, 2 pounds, 12 cents (103)	.12	.6	5	1	....	29
Butter, 2.5 pounds, 63 cents (106)	.63	3.3	1	51	....	458
Eggs, 4.25 pounds, 56 cents (105)	.56	3.0	13	9	....	132
Milk, 8.38 pounds, 24 cents (114)	.24	1.3	6	8	10	135
Cheese, 0.75 pound, 10 cents (111)	.10	.5	5	6	....	73
Total animal food	4.06	21.1	107	219	10	2,416
VEGETABLE FOOD.						
Cereals: Apple pie, 2 pounds, 24 cents (158); bread, 7 pounds, 30 cents (147); cake, 1.5 pounds, 30 cents (150); doughnuts, 1.13 pounds, 5 cents (156); flour, 24.5 pounds, 60 cents (122)	1.49	7.8	88	21	585	2,879
Sugar, 3 pounds, 18 cents (165)	.18	.9	....	....	72	288
Vegetables: Cabbage, 1.23 pounds, 8 cents (181); corn (canned), 1.31 pounds, 10 cents (184); cucumbers, 4 pounds, 10 cents (186); onions (dry), 5 pounds, 15 cents (189); onions (green), 0.75 pound, 25 cents (190); potatoes, 21 pounds, 45 cents (196); radishes, 0.66 pound, 5 cents (200); string beans, 1.97 pounds, 15 cents (178); turnips, 0.88 pound, 7 cents (212)	1.40	7.4	14	2	100	474
Total vegetable food	3.07	16.1	102	23	757	3,641
Total food	7.13	37.5	209	242	767	6,057

DIETARY STUDY NO. 60A.

This study was made with a Scotch family consisting of three men and a woman. The woman was in good health, but this was due to carefulness in diet, as she was not naturally strong. The income of the family was \$20 a week and \$9 a week from boarders. They occupied three rooms and a store, for which they were paying by installments, and which would rent for about \$60 a month. In addition to the food materials purchased they spent 21 cents for coffee and 16 cents for tea.

The study continued seven days. Two men ate their lunches away from home each day. Hence the number of meals taken was as follows:

	Meals.
Three men	49
Woman (21 meals × 0.8 meal of man), equivalent to	17
Total number of meals equivalent to	66

Equivalent to one man twenty-two days.

TABLE 27.—*Weights and cost of food and nutrients in dietary study No. 60a.*

Food consumed during the whole study (7 days).	Cost, nutrients, and fuel value of food per man per day.					
Kinds and amounts.	Cost.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
ANIMAL FOOD.	*Dollars.*	*Cents.*	*Grams.*	*Grams.*	*Grams.*	*Calories.*
Beef: Tenderloin steak, 3.25 pounds, 49 cents (32). Veal, neck, 7.75 pounds, 95 cents (42)	1.44	6.5	33	18	....	292
Pork: Bacon (smoked), 0.75 pound, 8 cents (55); chops, 1.5 pounds, 23 cents (58); sausage, 1.5 pounds, 18 cents (66)	.49	2.2	10	31	....	316
Butter, 2 pounds, 50 cents (106)	.50	2.3	....	35	....	312
Eggs, 7.5 pounds, 75 cents (105)	.75	3.4	20	15	....	214
Cream, 1.13 pounds, 10 cents (113)	.10	.5	1	4	1	42
Milk, 14.66 pounds, 35 cents (114)	.35	1.6	10	12	15	207
Total animal food	3.63	16.5	74	115	16	1,383
VEGETABLE FOOD.						
Cereals: Bread, 10 pounds, 58 cents (147); cake, 1 pound, 25 cents (150); crackers, 1 pound, 18 cents (153); pies, 2 pounds, 28 cents (158); rice, 0.5 pound, 4 cents (133)	1.33	6.1	25	10	163	841
Sugar, 2 pounds, 11 cents (163)	.11	.5	....	....	41	164
Vegetables: Beans (green), 0.66 pound, 7 cents (178); onions, 2 pounds, 10 cents (189); potatoes, 25 pounds, 50 cents (196); rhubarb, 3 pounds, 5 cents (201); spinach, 3.19 pounds, 10 cents (206); tomatoes (canned), 3.56 pounds, 24 cents (209)	1.06	4.8	12	1	87	405
Fruit: Bananas, 6 pounds, 25 cents (218)	.25	1.1	1	1	18	85
Total vegetable food	2.75	12.5	38	12	309	1,495
Total food	6.38	29.0	112	127	325	2,878

SUMMARY AND GENERAL DEDUCTIONS.

The results of the Chicago dietary studies are summarized in the following table:

TABLE 28.—*Summary of results of dietary studies with Chicago families.*

Dietary study No.	Families.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
		Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
29a	American, native	22.6	108	81	433	2,886
30a	....do	26.3	105	133	489	3,560
31a	....do	19.5	94	147	232	2,613
32a	....do	31.6	119	135	458	3,510
33a	....do	33.4	130	239	756	5,673
34a	....do	30.3	138	191	356	3,677
35a	....do	19.0	123	133	441	3,441
	Average	26.1	117	151	452	3,623
36a	American, German descent	29.9	119	152	340	3,189
37a	....do	18.6	110	106	428	3,095
38a	....do	22.2	105	94	443	3,031
39a	....do	16.5	111	87	487	3,167
40a	....do	18.5	100	157	267	2,867
	Average	21.1	109	119	393	3,070
41a	American, Irish descent	34.5	161	153	910	5,647
	Average all American families	24.9	117	139	465	3,566
42a	German	20.9	109	124	229	2,457
43a	....do	20.6	114	183	485	4,025
44a	....do	33.0	153	175	501	4,173
	Average	24.8	125	161	405	3,552

TABLE 28.—*Summary of results of dietary studies with Chicago families*—Continued.

Dietary study No.	Families.	Cost.	Protein.	Fat.	Carbohydrates.	Fuel value.
		Cents.	*Grams.*	*Grams.*	*Grams.*	*Calories.*
45a	Irish	23.5	101	109	356	2,799
46a	....do	31.7	145	168	512	4,124
47a	....do	27.8	167	239	552	5,004
48a	....do	32.9	168	182	380	3,813
49a	....do	21.6	112	123	554	3,759
50a	....do	18.1	94	104	290	2,462
	Average	25.9	131	154	441	3,660
51a	English	41.8	189	198	454	4,335
52a	English-Bohemian	37.2	111	65	459	2,860
53a	English-American	31.9	137	183	317	3,446
54a	German-English	17.4	79	99	336	2,543
55a	French-Canadian	31.0	140	202	557	4,587
56a	German-American	29.5	150	152	492	3,920
57a	Hungarian	32.9	146	201	622	4,860
58a	Bohemian	16.8	106	89	394	2,792
59a	Irish-English	37.5	209	242	767	6,057
60a	Scotch	29.0	112	127	325	2,878
	Average, all (32) studies	26.8	127	149	457	3,664

The cost of the diet per man per day varied in these studies from 16.5 cents in the lowest to 41.8 cents in the highest, but in most cases the range above or below the average, 26.8 cents, was considerably within these limits. In none of the Chicago studies was the expense as small as in two of the Philadelphia studies, but in three of the former it was larger than the largest among the latter.

In only three of the Chicago studies was the quantity of protein less than 100 grams per man per day. In two of these it was 94 grams and in one 79 grams. Probably in the latter case the figures should really be larger. One of the two men in the family was ill during the time of the study and doubtless ate less than he would when well, but in the calculations of the results of the study he has been credited with three full meals each day.

Concerning the dietary study No. 51a, with 189 grams of protein per man per day, and study No. 59a, with 209 grams, it has already been mentioned that the results are considered doubtful. Of the remaining studies the results of a few showed fairly large quantities of protein and energy per man per day, but the diet in the majority supplied not very far from the average of all the studies, namely, 127 grams of protein per man per day. This is practically the same as that of the commonly accepted American standard for a man at moderate muscular work, i. e., 125 grams per day. The energy of the average, 3,664 calories per man per day, is but 164 calories above that given by the standard just mentioned.

As in the case of the Philadelphia studies, the data concerning the occupations of the families were so few that but little can be said regarding the adequacy of the diet; but it may be inferred that it was sufficient. The families in these studies were more intelligent and were in better circumstances than were those in Philadelphia. They had

regular incomes, which in a number of cases were more than enough to provide a comfortable living. It is therefore doubtless safe to assume that these people ate at least as much as they needed.

The Chicago families were on the whole rather less economical than those in Philadelphia. In the average of all the Chicago studies each cent spent secured 4.7 grams of protein and 137 calories of energy, while in the average of the Philadelphia studies there were 5 grams of protein and 144 calories of energy for each cent of the cost. As was the case in Philadelphia, the Chicago families also differed widely in respect to the economy of their purchases. Thus in study No. 31a the family spent 19.5 cents per man per day and secured 94 grams of protein and 2,613 calories of energy, while the family in study No. 35a for practically the same expenditure, 19 cents per man per day, obtained 123 grams of protein and 3,441 calories of energy. The family in study No. 39a secured 111 grams of protein and 3,167 calories of energy for 16.5 cents, while the family in study No. 52a obtained the same amount of protein, 111 grams, and about 300 calories less energy, or 2,860 calories, at a cost of about two and one-third times as much, 37.2 cents. There are several other examples of the fact that some of the families paid very much more than was necessary for the quantities of nutrients and energy obtained.

The costliness of the diets in these studies was not due to inability to purchase in quantities. Several of the articles used in these studies were bought in this way, the principal one being flour, which was bought in every case by the bag or barrel. The chief reason for the lack of economy in the purchase of food was inattention to or ignorance of the relation between the cost of food and its actual nutritive value.

COMMENTS AND CONCLUSIONS.

Something perhaps should be said regarding the results of the dietary studies in Philadelphia and Chicago, considered as a whole. It should be remembered that the studies were carried on some years ago, before some of the experimental methods at present followed had been devised. Furthermore, it was hardly possible with the limited time and equipment at the investigators' disposal to make an entirely satisfactory record of the foods purchased and eaten, and consequently, in many cases considerable dependence had to be placed upon information given by the families themselves. Certain errors are almost sure to occur in studies of this kind, even under favorable circumstances and with the most careful attention on the part of those conducting the investigations, especially under conditions like those attending the work in Philadelphia, where the families studied were almost without exception quite ignorant and untrained. The chief source of error lies in the possible tendency of the family to give a

false impression of their food consumption; in some cases by purchasing larger quantities than usual or by reporting larger amounts than were actually purchased, and in other cases by omitting to mention some of the purchases made. For instance, it appears that families who had formerly been in more comfortable circumstances would sometimes be ashamed to let an outsider know how economically they were now living, and perhaps how insufficiently they were nourished. In such cases there might be a tendency to procure more food during the time of the study than ordinarily. Other families, suspecting an opportunity for pecuniary assistance, might be tempted to purchase less food than usual, or to conceal food already on hand. Another possible source of error is in the failure to make proper record of the number of meals taken by each member of the family or by any visitors.

It is noticeable that quite generally the results of dietary studies among poor families, where the statistics are recorded by the families themselves, indicate a larger food consumption than is found in the more reliable studies in which the food materials were actually weighed by those conducting the investigations. This was very forcibly illustrated by the results of dietary studies in Chicago in 1895 and 1896, described in a former publication of this Office.[a] In 25 studies in which the data were collected entirely by the investigators the average cost of the diet per man per day was 17.9 cents, and the average quantity of protein 116 grams, and of energy 3,160 calories. The persons in charge of these studies also conducted at the same time 28 others, in which the statistics were kept by the families themselves. These were made with families in the same localities and living under the same circumstances as the others, but the average cost of the diet per man per day as recorded was 22.1 cents, the average quantity of protein 147 grams, and of energy 3,550 calories. A comparison of the individual studies shows that where the statistics were furnished by the families the differences in results with different families were very much wider than in the studies made entirely by the investigators.

In the dietary studies in Philadelphia reported in these pages the families were not very intelligent and were in destitute circumstances; the chances for errors were therefore comparatively large. The families in the Chicago studies here reported were more intelligent and were in more comfortable circumstances, so that the possibilities of error in this case seem smaller. Bearing these facts in mind, it is evident that too sweeping conclusions should not be drawn from the results of the studies themselves or from the averages as compared with those of later studies of families in similar circumstances.

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[a] U. S. Dept. Agr., Office of Experiment Stations Bul. 55.

Considering the net results of these dietary studies they were of *undoubted value to the settlement associations under whose auspices* they were made. They furnished more accurate information than could have been gained otherwise regarding the ways of living, the adequacy of the diet, and the faults in methods of purchasing, cooking, and serving food. The information gained, it is believed, has been utilized in many ways to the advantage of all concerned.

Investigations like the above have been carried on in many other localities and under a variety of conditions. Of such work as a whole, it seems fair to say that it has materially assisted the attempts which have been made to help families like those studied in Philadelphia and Chicago to better methods of living.

APPENDIX.

As has been explained on preceding pages, the percentages of nutrients assumed for the different food materials used in the dietary studies reported in this bulletin are given in Table 29. These are taken mainly from a publication of this Office giving average values for the composition of American food materials,[a] but are included here in order that the present bulletin may contain all the data used in the composition of the results here reported.

The percentages of nutrients assumed for any food material used in the dietary studies may be found in the table below by means of the figures given in parentheses following the weights and cost of the food material in the detailed tables of the study in which it was used. The figures thus given in parentheses correspond with the figures in the column headed "Reference number" in Table 29.

In computing the fuel value of the studies the following factors were used: Protein 4, fat 8.9, and carbohydrates 4 calories per gram of the total nutrient. These are smaller than factors used in previous reports, namely, for protein and carbohydrates 4.1 and for fat 9.3 calories per gram, but the new factors are based upon later and much more complete data.

TABLE 29.—*Percentage composition of different food materials used in computing the nutrients of food in dietary studies in Philadelphia, Chicago, Boston, and Springfield.*

Ref. No.	Kind of food material.	Protein.	Fat.	Carbohydrates.
	Beef:	*Per cent.*	*Per cent.*	*Per cent.*
1	Bologna	18.2	19.7	....
1a	Brisket	12.0	22.3	....
2	Corned	14.3	23.8	....
3	Corned, rump	14.3	22.0	....
4	Dried	26.4	6.9	....
5	Frankfurters	19.6	18.6	1.1
6	Gelatin	91.4	.1	....
7	Heart	14.8	24.7	....
8	Liver	20.2	3.1	2.5
9	Neck	14.2	9.2	....
10	Rib roll	19.4	15.5	....
11	Roast, chuck	15.8	12.5	....
12	Roast, loin	16.4	16.9	....
13	Roast, pot (rump)	13.8	20.2	....
14	Roast, rib	14.4	20.0	....
15	Rump	15.2	18.6	....
16	Sausage	18.2	19.7	....
17	Shin (as lean shank)	13.2	5.2	....
18	Shin (as medium fat shank)	12.8	7.3	....

[a] U. S. Dept. Agr., Office of Experiment Stations Bul. 28, revised.

TABLE 29.—*Percentage composition of different food materials used in computing the nutrients of food in dietary studies in Philadelphia, Chicago, Boston, etc.*—Continued.

Ref. No.	Kind of food material.	Protein.	Fat.	Carbohydrates.
	Beef—Continued.	*Per cent.*	*Per cent.*	*Per cent.*
19	Shoulder and clod	16.5	8.4	....
20	Soup bone, fore shank	12.3	1.6	....
21	Soup bone, hind shank	9.7	3.9	....
22	Soup stock	5.8	1.5	....
23	Steak, chuck	15.3	11.1	....
24	Steak, flank	18.6	19.9	....
25	Steak, Hamburg	25.7	11.5	....
26	Do	19.0	12.8	....
27	Steak, porterhouse	19.1	17.9	....
28	Steak, round	19.2	9.2	....
29	Steak, round, lower cut	16.4	6.9	....
30	Steak, rump	15.2	18.6	....
31	Do	13.8	20.8	....
32	Steak, sirloin	16.5	16.1	....
33	Stew	16.5	8.4	....
34	Do	9.6	5.3	....
35	Suet	4.7	81.8	....
	Veal:			
36	Breast	15.7	8.2	....
37	Chuck	16.0	4.7	....
38	Heart	16.8	9.6	....
39	Leg	18.3	5.8	....
40	Liver	19.0	5.3	....
41	Loin	16.1	8.2	....
42	Neck	13.9	4.6	....
43	Rib	15.2	7.1	....
44	Round	20.1	7.5	....
	Mutton:			
45	Breast	15.4	19.1	....
46	Chops	13.1	31.5	....
47	Hind quarter	13.8	23.2	....
48	Leg	15.4	14.5	....
49	Liver	23.1	9.0	5.0
50	Neck	12.2	19.6	....
51	Shoulder	13.7	17.1	....
52	Shoulder, medium fat	13.7	15.5	....
	Lamb:			
53	*As mutton shoulder*	13.7	17.1	....
54	Leg	16.0	19.7	....
	Pork:			
55	*Bacon*	9.5	59.4	....
56	Bacon, fat	9.1	62.2	....
57	Bacon, lean	13.0	35.5	....
58	Chops	13.2	26.0	....
59	Fresh	13.4	24.2	....
60	Ham	14.3	29.7	....
61	Ham, boiled	20.2	22.4	....
62	Lard	....	100.0	....
63	Loin	13.4	24.2	....
64	Salt, fat	1.9	86.2	....
65	Salt, lean	7.4	59.6	....
66	Sausage	13.4	44.2	1.1
67	Scrapple[a]	3.3	18.3	11.2
68	Shoulders, smoked	12.6	33.0	....
69	Steak	14.3	29.7	....
70	Steak, ham	24.8	14.2	....
71	Tenderloin	18.9	13.0	....
72	Tripe	11.7	1.2	.2
	Poultry:			
73	Chicken fat	....	100.0	....
74	Duck	14.5	21.9	....
75	Fowl	13.7	12.3	....
76	Turkey	16.1	18.4	....
	Fish:			
77	Bluefish	10.0	.6	....
78	Clams	10.6	1.1	5.2
79	Cod, fresh	11.1	.2	....
80	Cod, salt (as purchased)	16.0	.4	....
81	Cod, salt (*edible portion*)	21.5	.3	....
82	Finland bloaters	20.5	8.8	....
83	Finnan haddie	22.3	2.3	....
84	*Haddock*	8.4	.2	....
85	Halibut, fresh	15.3	4.4	....
86	Halibut, smoked	19.3	14.0	....
87	*Herring, fresh*	11.2	3.9	....
88	Herring, smoked	20.5	8.8	....
89	Lake trout	9.1	5.1	....
90	Lobster	5.9	.7	.2
91	Mackerel	10.2	4.2	....
92	Do	11.6	3.5	....

[a] Estimated composition.

TABLE 29.—*Percentage composition of different food materials used in computing the nutrients of food in dietary studies in Philadelphia, Chicago, Boston, etc.*—Continued.

Ref. No.	Kind of food material.	Protein.	Fat.	Carbohydrates.
	Fish—Continued.	*Per cent.*	*Per cent.*	*Per cent.*
93	Oysters	6.1	1.3	3.3
94	Perch	7.3	1.5	....
95	Salmon	16.7	14.8	....
96	Salmon, canned	19.5	7.5	....
97	Salmon, salt	19.3	14.3	....
98	Salmon, whole	15.3	8.9	....
99	Sardines	23.7	12.1	....
100	Shad roe	20.9	3.8	....
101	Smelt	10.1	1.0	....
102	Smoked fish (as halibut)	19.3	14.0	....
103	Whitefish	10.6	3.0	....
104	Whitefish, smoked (as halibut)	19.3	14.0	....
105	Eggs	13.1	9.3	....
106	Butter	1.0	85.0	....
107	Butterine	1.2	83.2	....
108	Cheese, American	28.8	35.9	.3
109	Cheese, Camembert	25.9	33.7	2.4
110	Cheese, cottage	20.9	1.0	4.3
111	Cheese, full cream	25.9	33.7	2.4
112	Cheese, Neufchatel	18.7	27.4	1.5
113	Cream	2.5	18.5	4.5
114	Milk	3.3	4.0	5.0
115	Milk, skimmed	3.4	.3	5.1
	Cereals:			
116	Barley	8.5	1.1	77.8
117	Barley meal	10.5	2.2	72.8
118	Buckwheat	7.5	4.2	65.9
119	Corn meal	9.2	1.9	75.4
120	Corn meal, yellow	7.5	4.2	65.9
121	Flour, rye	6.8	.9	78.7
122	Flour, wheat—bread	11.4	1.0	75.1
123	Flour, wheat—entire wheat	13.8	1.9	71.9
124	Flour, wheat—graham	13.3	2.2	71.4
125	Flour, wheat—pastry	13.3	1.5	72.7
126	Hominy	8.3	.3	79.0
127	Macaroni	13.4	.9	74.1
128	Noodles	11.7	1.0	75.6
129	Oat breakfast food	15.5	7.4	66.8
130	Oatmeal	16.1	7.2	67.5
131	Oats, rolled	16.7	7.3	66.2
132	Popcorn (popped)	10.7	5.0	78.7
133	Rice	8.0	.6	79.0
134	Samp	8.3	.8	79.2
135	Spaghetti	12.1	.4	76.3
136	Wheat breakfast food	11.9	1.5	76.6
137	Do	11.8	1.0	76.3
138	Do	10.6	1.9	76.2
139	Do	10.7	1.4	75.1
140	Wheat, cracked	11.1	1.7	75.5
141	Wheat, germs	10.5	2.0	76.0
142	Wheatena	14.1	3.1	73.5
143	Wheat, shredded	10.5	1.4	77.9
144	Bread, Boston brown	5.4	1.8	47.1
145	Bread, graham	8.9	1.8	52.1
146	Bread, rye	9.0	.6	53.2
147	Bread, white	9.2	1.3	53.1
148	Buns	6.3	6.5	57.3
149	Buns, cinnamon	9.4	7.2	59.1
150	Cake	6.3	9.0	63.3
151	Cakes	7.0	9.7	73.7
152	Cookies, sugar	7.0	10.2	73.2
153	Crackers	10.7	8.8	71.9
154	Crackers, Boston	11.0	8.5	71.1
155	Crackers, soda	9.8	9.1	73.1
156	Doughnuts	16.7	21.0	53.1
157	Ginger snaps	6.5	8.6	76.0
158	Pie	3.1	9.8	42.8
159	Rolls	9.7	4.2	59.9
160	Rolls	8.9	4.1	56.7
161	Wafers, salted	10.6	12.7	68.5
	Sugars, starches, and oils:			
162	Sugar, brown	....	....	95.0
163	Sugar, white	....	....	100.0
164	Honey	.4	....	81.2
165	Molasses	2.4	....	69.3
166	Sirup	....	....	71.4
167	Chocolate	12.9	48.7	30.3
168	Cocoa	21.6	28.9	37.7
169	Irish moss (as tapioca)	4	.1	88.0
170	Oil, cotton-seed	....	100.0	....

TABLE 29.—*Percentage composition of different food materials used in computing the nutrients of food in dietary studies in Philadelphia, Chicago, Boston, etc.*—Continued.

Ref. No.	Kind of food material.	Protein.	Fat.	Carbohydrates.
	Sugars, starches, and oils—Continued.	*Per cent.*	*Per cent.*	*Per cent.*
171	Oil, olive	....	100.0	....
172	Starch, corn	....	....	90.0
173	Starch, tapioca	0.4	.1	88.0
	Vegetables:			
174	Asparagus	1.8	.2	3.3
175	Beans, butter	4.7	.3	14.6
176	Beans, Lima	18.1	1.5	71.1
177	Beans, navy	22.5	1.8	59.6
178	Beans, string	2.1	.3	6.9
179	Beans, string, canned	1.1	.1	3.8
180	Beets	1.3	.1	7.7
181	Cabbage	1.4	.2	4.8
182	Carrots	.9	.2	7.4
183	Celery	.9	.1	2.6
184	Corn, canned	2.8	1.2	19.0
185	Corn, green	1.2	.4	7.7
186	Cucumbers	.7	.2	2.6
187	Lettuce	1.0	.2	2.5
188	Mushrooms	3.5	.4	6.8
189	Onions, dry	1.4	.3	8.9
190	Onions, green	.5	.1	5.5
191	Parsnips	1.3	.4	10.8
192	Peas, canned	3.6	.2	9.8
193	Peas, dried	24.6	1.0	62.0
194	Peas, green	3.6	.2	9.8
195	Peas, split	24.6	1.0	62.0
196	Potatoes	1.8	.1	14.7
197	Potatoes, Saratoga chips	6.8	39.8	46.7
198	Potatoes, sweet	1.4	.6	21.9
199	Pumpkins	.5	.1	2.6
200	Radishes	.9	.1	4.0
201	Rhubarb	.4	.4	2.2
202	Roman lettuce	1.0	.2	2.5
203	Salsify (as parsnips)	1.3	.4	10.8
204	Sauerkraut	1.7	.5	3.8
205	Soup greens	1.8	.4	1.7
206	Spinach	2.1	.3	3.2
207	Squash	.7	.2	4.5
208	Succotash, canned	3.6	1.0	18.6
209	Tomatoes, canned	1.2	.2	4.0
210	Tomatoes, conserve	.7	.1	57.6
211	Tomatoes, fresh	.9	.4	3.9
212	Turnips	.9	.1	5.7
213	Watercress	4.2	.6	6.3
	Fruits:			
214	Apples	.3	.3	10.8
215	Apple butter	.5	....	47.2
216	Apricots	1.0	....	12.6
217	Apricots, dried	4.7	1.0	62.5
218	Bananas	.8	.4	14.3
219	Barberry jelly	.5	....	63.8
220	Candied fruit (as marmalade)	.6	.1	84.5
221	Cherries, canned	1.1	.1	21.1
222	Cherry jelly	1.1	....	59.8
223	Do	1.2	....	59.8
224	Cocoanut, prepared	6.3	57.4	31.5
225	Crab-apple jelly	.5	....	61.7
226	Do	.4	....	65.8
227	Cranberries	.4	.6	9.9
228	Cranberry jelly	.4	....	64.0
229	Currants, dried	2.4	1.7	74.2
230	Dates	1.9	2.5	70.6
231	Figs	4.3	.3	74.2
232	Grapes	1.0	1.2	14.4
233	Grape jelly	.3	....	64.3
234	Grape fruit	.6	.1	8.5
235	Jelly	1.1	....	59.9
236	Lemons	.7	.5	5.9
237	Marmalade, orange	.5	....	74.4
238	Oranges	.6	.1	8.5
239	Peaches, canned	.7	.1	10.8
240	Peaches, dried	4.7	1.0	62.5
241	Pears	.5	.4	12.7
242	Pears, dried	2.8	5.4	72.9
243	Pineapples	.4	.3	9.7
244	Pineapples, canned	.4	.7	36.4
245	Plums, canned	1.8	....	62.2
246	Prunelles (as dried apricots)	4.7	1.0	62.5
247	Prunes, dried	1.8	....	62.2
248	Raisins	2.3	3.0	68.5

TABLE 29.—*Percentage composition of different food materials used in computing the nutrients of food in dietary studies in Philadelphia, Chicago, Boston, etc.*—Continued.

Ref. No.	Kind of food material.	Protein.	Fat.	Carbohydrates.
	Fruits—Continued.	*Per cent.*	*Per cent.*	*Per cent.*
249	Raspberry jam (as cherry jelly)	0.7	....	69.4
250	Strawberries	.9	0.6	7.0
251	Strawberries, preserved	.7	....	24.0
	Nuts:			
252	Almonds	21.0	54.9	17.3
253	Hickory nuts	5.8	25.5	4.3
254	Peanuts (as purchased)	19.5	29.1	18.5
255	Peanuts (edible portion)	25.8	38.6	24.4
256	Walnuts, English	6.9	26.6	6.8
257	Walnuts, English (edible portion)	18.4	64.4	13.0
258	Country pudding[a]	4.6	5.3	31.9
259	Beer[b]	.5	....	11.5

[a] Composition assumed.
[b] Alcohol computed to equivalent of carbohydrates.